DOCUMENT RESUME

ED 198 193 UD 020 956

TITLE Diagnostic & Prescriptive Teaching: A Self-Directed Program for Staff Development. Bulletin 1976, No. 7.

INSTITUTION Alabama State Dept. of Education, Montgomery. Div. of Administration and Finance.

PUB DATE 76

NOTE 272p.: Several tables are wrong reading.

EDRS PRICE MF01/PC11 Plus Postage.

DESCRIPTORS Criterion Referenced Tests: *Diagnostic Teaching: Educational Diagnosis: Elementary Secondary Education: Faculty Development: Independent Study: *Individualized Instruction: *Inservice Teacher Education: Learning Modules: Mathematics Instruction: Norm Referenced Tests: Reading Instruction: *Test Interpretation: Worksheets

IDENTIFIERS Diagnostic Prescriptive Approach: Elementary Secondary Education Act Title I

ABSTRACT

This handbook on diagnostic-prescriptive teaching was designed as a self-directed, individualized staff development program for teachers. Three packets are included in the handbook: (1) Diagnosis: Collecting and Reporting Data, (2) Analysis, and (3) Prescriptive Teaching. The six modules presented in Packet One address aptitude testing, achievement test data, personal data, preference profiles, norm referenced and informal reading tests, and norm referenced and criterion referenced mathematics tests. The three modules presented in the Analysis packet focus on using diagnostic information: analyzing data, selecting teaching materials, and choosing alternate teaching procedures. The Prescriptive Teaching packet is comprised of two modules which address writing performance objectives, classroom organization, developing appropriate teaching strategies, evaluation, and prescriptive writing. Each module contains a rationale or introduction, objectives, directions for use, supportive information or examples, learning activities, answers for the learning activities, and self-assessment guidelines. (MK)

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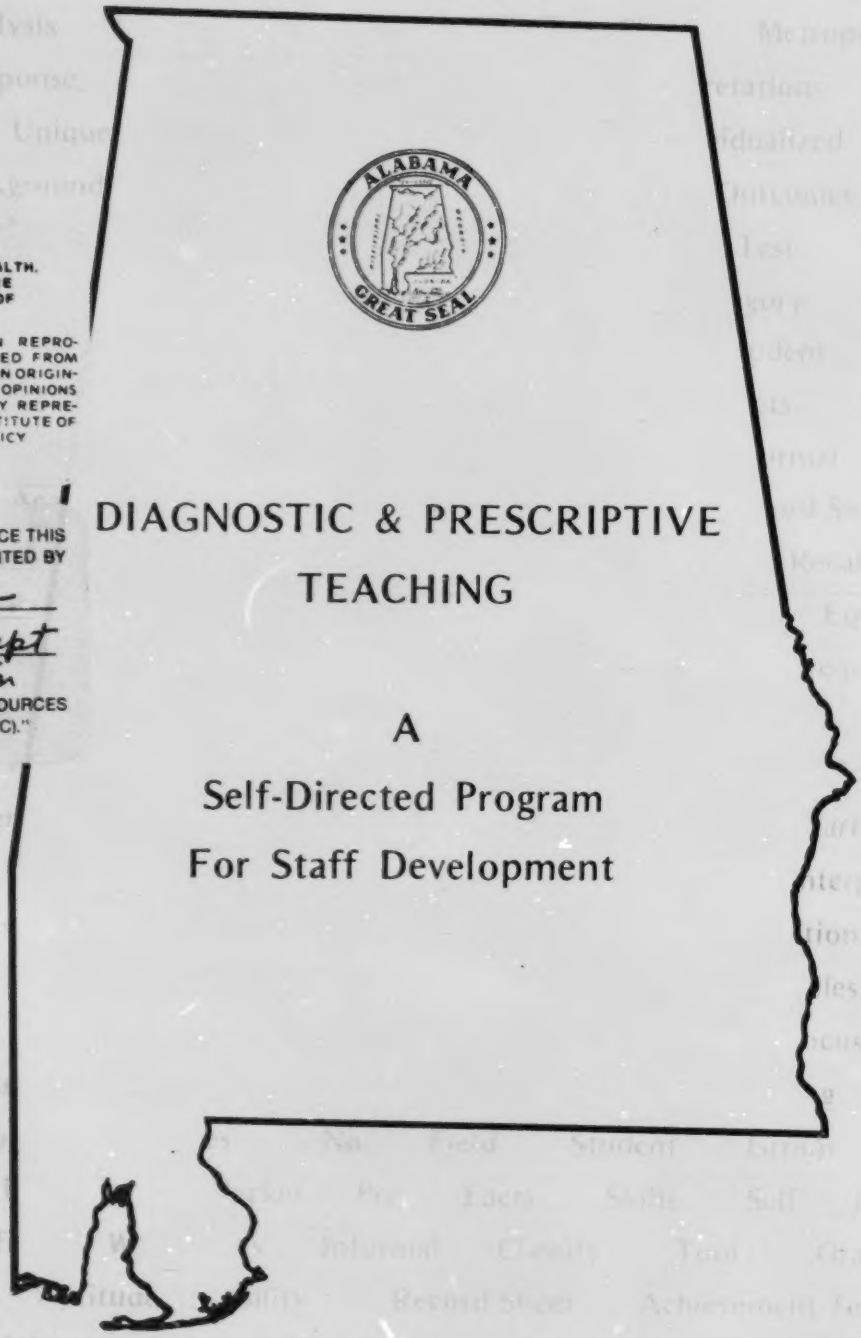

DIAGNOSTIC & PRESCRIPTIVE TEACHING

A

Self-Directed Program

For Staff Development

UD020956

ALABAMA STATE DEPARTMENT OF EDUCATION
DIVISION OF ADMINISTRATION AND FINANCE
MONTGOMERY, ALABAMA
BULLETIN 1976, NO. 7

DIAGNOSTIC-PRESCRIPTIVE TEACHING

A Self Directed Program

For Staff Development

ESEA, Title I

Public Law 89-10

(As Amended)

Wayne Teague
State Superintendent of Education
Alabama State Department of Education
State Office Building
Montgomery, Alabama 36130

1976

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DIAGNOSTIC-PRESCRIPTIVE TEACHING

A Self Directed Program

For Staff Development

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FOREWORD

The expression "a born teacher" brings to mind various mental images depending on our frame of reference. Each of us has fond memories of certain teachers from our past which fit the description "born teacher". Some of the characteristics we recall are warmth, understanding, patience, the ability to explain things and certainly the ability to make learning fun. However, in reality the things which a "born teacher" or "good" teacher does may elude the untrained observer. Techniques used by the good teacher come from experience in knowing some of the probable responses a child will make to various expectations or activities. There is more than good instincts at work since these things do not just "happen." The effective teacher possesses skill and knowledge that provide the foundation for individual creativity in planning the teaching-learning activities for students.

Since so few individuals are "born teachers," ways must be provided for teachers to develop insights and skills that may come naturally to those favored few. It is hoped that this manual, Diagnostic-Prescriptive Teaching -- A Self Directed Program for Staff Development, may be helpful in turning theory into practice. It is also hoped that the approach taken in this manual will assist

teachers to become more sensitive observers, flexible to the learning needs of the child, and able to develop a plan to meet the diagnosed need of the child. The truly effective teacher was not "born" with these traits but they were acquired through training and experience.

Wayne Teague

Wayne Teague
State Superintendent of Education

PREFACE

The primary mission of education is to enable students to develop as fully as possible. To accomplish this mission, schools must identify those things that a student needs to learn and approach them on an organized, sequential basis. The identification of learner needs can be accomplished, in part, by utilizing the various resources available to public school agencies, such as the use of standardized testing instruments to aid in the identification of learner needs. After it has been determined which needs are to be met, every possible means should be considered for use in meeting them. There are usually several ways to attain an objective. It is, therefore, important to consider all options before deciding on a course of action.

How to best meet these needs is a critical decision. In education today there is a plethora of materials, methods and ways to meet the needs of learners, recognizing that there is not <u>one</u> way to meet these needs. Since each child is an individual with his own learning style, it should be concluded that a teacher must plan the educational program to meet the needs of each child. In determining ways to meet these needs, the future adjustment of today's students is being influenced by each teacher's success in removing the obstacles to student learning. In such a manner, the effectiveness of the instructional program and the teaching procedures may be improved so that each child may be helped to develop as his capacity permits.

Beginning with an assessment of learner needs through the use of diagnostic testing, a method to determine skill strengths and weaknesses is devised. The second step involves analyzing data previously collected on the student and keying teaching materials to the identified skill areas. The third step is the preparation of a prescription to meet the assessed skill needs, and the final step is the implementation of the prescription in the classroom.

When these steps have been taken, the instructional program can lead directly to attaining the mission of the school by selecting the essential concepts to be taught with their related skills and then teaching them in an orderly and sequential format. Therefore, the instructional program is developed for students in terms of specific learner skill strengths and weaknesses. The skill needs then become the key to what the learning experiences should be.

The teacher is the manager of the learning experience. Managing the learning experiences of the child requires careful planning, based on accurate information on the child, the learning style of the child and the identified skill needs. Therefore, diagnostic and prescriptive teaching is <u>one way</u> of individualizing instruction to meet the learner needs.

In determining ways to assist local school systems in Alabama, requests by the Title I administrators were primarily for assistance in planning or conducting in-service training of teachers in individualizing instruction for reading and mathematics. Many teachers

recognized the need for a diagnostic-prescriptive teaching process but lacked the skills needed in this endeavor. Therefore, in-service training of teachers in diagnosing the skill strengths and weaknesses of the student, analyzing the collective data on him, and preparing prescriptions to meet these diagnosed needs should be provided through specific training of teachers in these processes.

A state-wide planning session was conducted in which local Title I administrators, supervisors and teachers indicated the direction in which a program might be developed to assist local school systems in Alabama in individualizing instruction. A request was again expressed for the State to assume a leadership role in providing assistance to teachers.

As a response to this request for the State to assume a leadership role, a working task force of representatives from various school systems in the State was selected to prepare a program for staff development of the diagnostic and prescriptive approach to teaching. There were twenty educators who participated from the local level; twelve were extensively involved in the writing. Of those with continuous involvement, five were Title I administrators, three were Title I supervisors, three were Title I teachers of reading or mathematics, and one was a Title I instructional specialist at the State Department level. The leadership and planning of work sessions was provided by the State Department representative; however, a university professor was appointed to serve as a facilitator for work sessions. Those persons involved in these activities represented

both city and county systems, large and small systems, rural and urban systems, and a composite of the race groups. Geographically, these persons represented all areas of the State.

The Task Force decided that the staff development program should be one which would be self-directed and individualized for the teacher-learner needs. The Diagnostic-Prescriptive Teaching package was divided into three major areas or packets. Packet I would be Diagnosis: Collecting and Recording Data; Packet II -- Analysis; and Packet III -- Prescriptive Teaching. Each packet would be sub-divided into chapters or modules on various topics repated to that packet. Each packet would contain the same format which would include:

1. The rationale or introduction to the module.
2. Objectives of the module for the learner.
3. Directions for handling the module.
4. Supportive information or examples for the learning activities.
5. Learning activities.
6. Answers to the learning activities.
7. Self-assessment for the learner with regard to the module.

Diagnosis is a process of assessing needs by which the teacher uses professional skills, instruments, and techniques to examine the skill strengths and weaknesses possessed by a student. Frequently, the teacher has limited diagnosis to data provided through a norm-referenced test. However, a diagnostic system should include not only the achievement data but the academic aptitude and diagnostic instruments for both reading and mathematics, plus a continuous assessment of background, interest and

learning style of the student. Diagnosis eliminates the guesswork and leads to the source of the problem. It provides both insight and information.

Packet I - Diagnosis: Collecting and Recording Data includes the follcwing:

Module A. Academic Aptitude - a familiarization of academic aptitude tests and the use of data from this type test.

Module B. Achievement Test Data - a familiarization of various type achievement tests, plus the use of this data.

Module C. Personal Data - various forms provide assistance in the collecting, tabulation and use of information on the students backgrounds, interests, health and social adaptation within the family and the school.

Module D. Other Data - provides data to assist the teacher in determining a student's learning style or preference.

Module E-1. Reading: Norm-Referenced Tests - assists teachers in using a norm-referenced test print-out to determine areas of strength and weakness plus developing a student and class profile of these identified skills.

Module E-2. Informal Reading Tests - assists teachers in constructing, administering, and evaluating graded word lists and graded oral reading paragraphs to develop an informal reading inventory.

Module F-1. Mathematics Norm-Referenced Tests -- assists teachers in using a norm-referenced test print-out to determine areas of strength and weakness, plus developing a student and class profile

of these identified areas.

Module F-2. Mathematics Criterion Referenced Tests - assists teachers in developing their own criterion referenced mathematics tests.

The diagnostic process of administering and scoring tests and of collecting other forms of data is not very helpful to a teacher unless the data are carefully examined. This process of scrutiny and critical study is analysis.

Packet II on Analysis includes the following:

Module A. Previously Collected Data - assists teachers in analyzing data to identify strengths and weaknesses of a student and to construct analysis charts applicable to an individual reading or mathematics class.

Module B. Keying and Selecting Available Materials - assists teachers to key materials to skills, to inventory available materials and to selecting materials which have been keyed to specific skills.

Module C. Alternate Teaching Procedures - assists teachers in selecting one or more teaching plans which reflect the diagnostic summary of the strengths and weaknesses of a specific student.

Prescription is a teaching strategy or plan of activities which meets the specific or diagnosed need of the learner. Offering every child in a classroom the particular instruction he needs just when he needs it along with the appropriate personal instruction may lie beyond the potential of many teachers. Within this context, a continuing effort should be made to approach the ultimate teaching-learning situations by tailoring

instruction to a student as precisely as possible. Accurately tailoring an activity designed to meet a specific need of a student is neither impossible nor impractical if a sequentially organized approach is used. The prescription process is a continuation of the analysis of student's needs and is designed to put the diagnosis into action.

Packet III on Prescriptive Teaching consists of the following:

Module A-1. Writing Performance Objectives - assists teachers in developing performance-stated student objectives in the cognitive, affective, and psychomotor domains.

Module A-2. The Learning Situation - assists teachers in developing a classroom organization which will facilitate the grouping of students, utilization of materials and equipment, and utilization of instructional time.

Module A-3. Teaching Learning Procedures - assists teachers in developing teaching alternatives for a student.

Module A-4. Evaluation of Learning - assists teachers in developing instruments to provide an indication of possible attitudinal changes in students.

Module B. Prescriptive Writing - provides examples of prescription writing and assists teachers in this process.

After the completion of the project writing by the Task Force, the package was prepared for field testing. A ten percent sampling of both school systems and Title I teachers was selected from various geographic regions in the State to include the following:

(1) urban cities and counties; small and large

(2) rural cities and counties; small and large

(3) systems both predominately black and systems with predominately white enrollments.

(4) systems with a balance of black-white enrollment.

The field testing required a two-day workshop in each of the selected areas. Both pretests and posttests were administered to the participating teachers at each site.

The field testing was conducted in the same manner at each location, whereby each testing group was sub-divided into small working groups for ease in presenting the packets. After each module was completed, each group critiqued that module. From these critiques, adjustments were made on the modules.

The success of the diagnostic-prescriptive teaching process will depend on the successful training of each classroom teacher. In such a manner, the effectiveness of the instructional program and the teaching procedures may be improved so that each child develops as his capacity permits.

David H. Nettles, Chairman
Instructional Specialist

ACKNOWLEDGEMENTS

The chairman wishes to express appreciation to those persons involved in this program, with special appreciation -- to the writing task force who spent many hours of their personal time in preparation of the material -- to the facilitator, Dr. Robert T. Anderson, who gave direction to the task force -- to the field testing group: Scarlett Farley, Don Morton, Larry Payne, and Carolyn Powell -- to the administrators, supervisors and teachers who actively participated in the field test -- to the typing staff: Sarah Longshore, who coordinated the typing; Shirley Taylor; Ruth Watkins; and Connie Williams for their untiring efforts and dedication to a tedious task of typing the manual -- to Dr. Jayne A. Meyer for editing the material -- to Ruth Lockett for designing the cover for the manual -- and to the Alabama State Department of Education administrators: Dr. W. H. Kimbrough; Dr. W. E. Mellown, Jr; and Mr. F. A. Spear whose encouragement made this project possible.

This manual is dedicated to the Title I teachers in Alabama. It is hoped this program will improve their effectiveness in removing obstacles to student learning and contribute to the mission of education by meeting the needs of the educationally deprived child.

David H. Nettles
Project Chairman

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PACKET I

DIAGNOSIS: COLLECTING AND RECORDING DATA

MODULE A

ACADEMIC APTITUDE

INTRODUCTION

Many technical definitions for IQ, mental ability, or academic aptitude could be given; but in terms of a teacher in the classroom, mental ability is a combination of all characteristics both native and acquired contributing to a person's capacity to develop proficiency in some skill or knowledge after relevant training. The difficulty in identifying the various components of academic aptitude along with a lack of measuring devices for each component should be an indication to the teacher that concrete results from academic aptitude tests are also difficult to obtain, especially if the test is a paper and pencil group test. Academic aptitude scores should be used with a great deal of discretion as many false assumptions may be drawn from them.

Objective

After completing Module A, the participant will demonstrate the ability to use academic aptitude scores by identifying the various data in their school containing academic aptitude scores and by recording the scores in a usable form.

Directions

Review the examples of test data included under the section Examples and Supportive Information. Give special attention to the section dealing with IQ, academic aptitude, mental ability, or other terminology indicating academic aptitude. The examples will also

contain achievement data, although this module is primarily related to academic aptitude data collection. When you have completed a review of the examples, proceed to the learning activities.

EXAMPLES AND SUPPORTIVE INFORMATION

The following pages contain a glossary of measurement terms and examples of test data reported from various testing companies.

GLOSSARY OF MEASUREMENT TERMS

academic aptitude: The combination of native and acquired abilities that is needed for school work; likelihood of success in mastering academic work, as estimated from measures of the necessary abilities. (Also called scholastic aptitude).

achievement age: The age for which a given achievement test score is the real or estimated average. (Also called educational age or subject age). If the achievement age corresponding to a score of 36 on a reading test is 10 years, 7 months (10-7), this means that pupils 10 years, 7 months achieve, on the average, a score of 36 on that test.

achievement test: The extent to which a person has "achieved" something--acquired certain information or mastered certain skills, usually as a result of specific instruction.

age equivalent: The age for which a given score is the real or estimated average score.

age-grade table: A table showing the number or percent of pupils of various ages in each grade; a distribution of the ages of pupils in successive grades.

age norms: Values representing typical or average performance for persons of various age groups.

aptitude: A combination of abilities and other characteristics, whether native or acquired, known or believed to be indicative of an individual's ability to learn in some particular area. Thus, "musical aptitude" would refer broadly to that combination of physical and mental characteristics, motivational factors, and conceivably other characteristics, which is conducive to acquiring proficiency in the musical field. Some exclude motivational factors, including interests, from the concept of "aptitude," but the more comprehensive use seems preferable. The layman may think of "aptitude" as referring only to some inborn

capacity; the term is no longer so restricted in its psychological or measurement usage.

arithmetic mean: The sum of a set of scores divided by the number of scores. (Commonly called average mean).

average: A general term applied to measure of central tendency. The three most widely used averages are the arithmetic mean, the median, and the mode.

battery: A group of several tests standardized on the same population, so that results on the several tests are comparable. Sometimes loosely applied to any group of tests administered together, even though not standardized on the same subjects.

class analysis chart: A chart, usually prepared in connection with a battery of achievement tests, that shows the relative performance of members of a class on the several parts of the battery.

criterion-referenced test: A test which covers an explicit set of skills in great detail and provides information suitable for diagnosing weaknesses in these skills.

decile: Any one of the nine percentile points (scores) in a distribution that divide the distribution into ten equal parts; every tenth percentile. The first decile is the 10th percentile, the ninth decile, the 90th percentile, etc.

diagnostic test: A test used to "diagnose," that is, to locate specific areas of weakness or strength, and to determine the nature of weaknesses or deficiencies; it yields measures of the components or sub-parts of some larger body of information or skill. Diagnostic achievement tests are most commonly prepared for the skill subjects--reading, arithmetic, spelling.

distribution: (frequency distribution): A tabulation of scores from high to low, or low to high, showing the number of individuals that obtain each score or fall in each score interval.

grade equivalent: The grade level for which a given score is the real or estimated average.

grade norm: The average score obtained by pupils of given grade placement.

group test: A test that may be administered to a number of individuals at the same time by one examiner.

individual test: A test that can be administered to only one person at a time.

intelligence quotient (IQ): Originally, the ratio of a person's mental age to his chronological age $\left(\frac{MA}{CA}\right)$ or, more precisely, especially for older persons, the ratio of mental age to the mental age normal for chronological age (in both cases multiplied by 100 to eliminate the decimal). More generally, IQ is a measure of brightness that takes into account both score on an intelligence test and age. A deviation IQ is such a measure of brightness, based on the difference or deviation between a person's obtained score and the score that is normal for the person's age.

item analysis: The process of evaluating single test items by any of several methods. It usually involves determining the difficulty value and the discriminating power of the item, and often its correlation with some criterion.

mental age (MA): The age for which a given score on an intelligence test is average or normal, If a score is 55 on an intelligence test corresponds to a mental age of 6 years, 10 months, then 55 is presumably the average score that would be made by an unselected group of children 6 years, 10 months of age.

norm-referenced test: Tests which are used to compare the progress of a group of students with that of other students in the nation.

norms: Statistics that describe the test performance of specified groups, such as pupils of various ages or grades in the standardization group for a test. Norms are often assumed to be representative of some larger population, as of pupils in the county as a whole. Norms are descriptive of average, typical, or mediocre performance; they are not to be regarded as standards, or as desirable levels of attainment. Grade, age, and percentile are the most common types of norms.

percentile: (P): A point (score) in a distribution below which falls the percent of cases indicated by the given percentile. Thus, the 15th percentile denoted the score or point below which 15 percent of the scores fall. "Percentile" has nothing to do with the percent of correct answers an examinee has on a test.

percentile rank: The percent of scores in a distribution equal to or lower than the score corresponding to the given rank.

raw score: The first quantitative result obtained in scoring a test. Usually the number of right answers, number right minus some fraction of number wrong, time required for performance, number of errors, or similar direct, unconverted, uninterpreted measure.

standardized test (standard test): A systematic sample of performance obtained under prescribed conditions, scored accoring to definite rules, and capable of evaluation by reference to normative information. Some writers restrict the term to tests having the above properties, whole

items have been experimentally evaluated, and/or for which evidences of validity and reliability are provided.

stanine: One of the steps in a nine-point scale of normalized standard scores. The stanine (short for standard-nine) scale has values from 1 to 9, with a mean of 5, and a standard deviation of 2.

EXAMPLES OF TEST DATA

The following test data are designed to assist in recognizing academic aptitude scores. Academic aptitude scores usually contain IQ, mental age, chronological age, language or non-language scores, percentile ranks, and stanine. Definitions of these terms are included in the Glossary of Terms.

CHART A
CALIFORNIA ACHIEVEMENT TEST
State Printout

PUPIL NAME / PUPIL ID			ACAD. RS	ACAD. IQ	APT. S	APT. NP	*		READING RS	READING OGP	READING S	READING NP	*		MATHEMATICS RS	MATHEMATICS OGP	MATHEMATICS S	MATHEMATICS NP	*
	01	LANG	022	84	3	16	1	VOCAB	014	3.2	4	24	1	COMPUT	029	4.2	4	33	1
		NON-L	025	91	4	30		COMPRE	018	3.9	4	35		CONCPT	016	3.4	4	23	
		TOTAL	047		3	21		TOTAL	032	3.6	4	29		TOTAL	045	3.9	4	27	
	02	LANG	020	82	3	14	1	VOCAB	011	2.6	3	15	1	COMPUT	031	4.4	4	39	1
		NON-L	020	83	3	17		COMPRE	016	3.4	4	27		CONCPT	023	4.7	5	51	
		TOTAL	040		3	14		TOTAL	027	3.0	3	18		TOTAL	054	4.5	5	45	
	03	LANG	038	112	6	65	1	VOCAB	029	6.2	7	80	1	COMPUT	031	4.4	4	39	1
		NON-L	028	100	5	41		COMPRE	029	6.8	7	80		CONCPT	025	5.1	6	61	
		TOTAL	066		5	53		TOTAL	058	6.4	7	79		TOTAL	056	4.6	5	49	
	13	LANG	008	65	1	2	1	VOCAB	012	2.8	3	18	1	COMPUT	012	2.0	1	2	1
		NON-L	007	60	1	1		COMPRE	011	2.5	2	10		CONCPT	008	2.2	2	5	
		TOTAL	015		1	1		TOTAL	023	2.5	3	12		TOTAL	020	2.0	1	2	
	14	LANG	031	95	4	36		VOCAB	017	3.8	4	35	1	COMPUT	038	5.0	6	67	1
		NON-L	021	86	3	19		COMPRE	023	5.0	5	57		CONCPT	024	4.9	5	56	
		TOTAL	052		4	27		TOTAL	040	4.5	5	46		TOTAL	062	5.0	6	63	

KEY RS-RAW SCORE S-STANINE NP-NATIONAL PERCENTILE OGP-OBTAINED GRADE PLACEMENT
THE NUMBER BELOW THE ASTERISK(*) DENOTES THE NUMBER OF TESTS SCORED FOR THIS PUPIL.

STUDENTS NUMBER 01, 02, 03, 13, AND 14 WERE TAKEN FROM A CLASS LIST FOR THE PURPOSE OF FACILITATING THE COMPLETION OF THIS LEARNING ACTIVITY.

The example of the California Achievement Test given on the preceeding page includes an academic section under the heading "Acad. Apt." Information in this section is comprised of language, non-language, and total scores. The language, non-language, and total scores are reported in terms of RS (raw score), IQ (intelligence quotient), S (stanine), and NP (national percentile).

For example, look at student 01. The number of correct responses reported as raw score in the language section of the test was 22 (022) under the "RS" (raw score) column. Correct responses in the non-language were 25 (025). The total correct responses for the test reported in the "Total" line under "RS" are 47 (047). The "047" is the sum of the language and non-language raw scores.

The 84 in the IQ column is the language IQ, and the 91 in the IQ column is the non-language IQ. This printout does not provide a total IQ score. (It should be noted that an average of 84 and 91 will not necessarily give the total IQ score).

The column labeled "S" provides information related to stanine. The scores are located in the same order as in previous sections. The "NP" column contains the national percentile data for the sections of the test. (It should be noted that the 16 language national percentile rank and the 30 non-language national percentile rank will not numerically average the 21 total national percentile rank).

CHART B
CALIFORNIA SHORT FORM TEST OF ACADEMIC APTITUDE
CLASS RECORD SHEET

CTB CLASS RECORD SHEET
STEWART SCHOOL GRADE 04.8 TEST DATE 05/74
ASH GROVE CITY STATE CA TEST SHORT FORM TEST OF ACADEMIC APTITUDE RUN DATE 10/09/74
LEVEL FORM 2 BATCH 1201 GROUP 001 PAGE 1

NAME	CA	MENTAL AGE			INTELLIGENCE QUOTIENT			REFERENCE SCALE SCORE			NPA		
		LANG	NON LANG	TOT	LANG	NON LANG	TOT	LANG	NON LANG	TOT	LANG	NON LANG	TOT
ALSPAUGH KARE	10-08	9-08	9-11	9-10	94	96	94	403	447	413	43	47	46
BAKER JERRY	10-05	11-11	13-02	12-08	109	115	114	479	528	500	77	87	87
BALESTRIERI J	10-04	8-11	13-02	10-02	91	115	99	376	528	426	31	87	53
COOLEY ALICIA	11-03	8-04	7-04	8-00	82	77	79	353	368	350	22	13	17
ERVIN WILLIAM	10-00	11-00	10-11	11-01	87	105	107	450	474	452	65	64	67
SCHMAELZE BOB	11-01	12-06	8-03	9-11	108	84	93	497	399	417	83	24	48
SHARP HOWARD	10-01	10-04	11-04	10-10	102	107	105	428	484	446	55	69	64
TAULMAN RALPH	9-10	9-03	9-01	9-03	96	95	96	389	425	395	36	37	37
VOGEL DANNY	10-01	13-03	10-11	12-00	119	105	113	520	474	481	89	64	80
WHEELBON JEFF	12-04	9-05	6-10	8-04				396	349	361	40	8	21
MEANS	10-04	11-05	11-03	11-03	107.1	105.7	106.8	459.9	478.7	456.6			

KEY NPA=NATIONAL PERCENTILE(AGE) NS=NATIONAL STANINE CA=CHRONOGICAL AGE TOTAL CASES 42
NPG=NATIONAL PERCENTILE (GRADE) LP=LOCAL PERCENTILE MENTAL AGE NOT AVAILABLE
SIS=STANDARD SCORE LS=LOCAL STANINE FOR LEVELS 4 AND 5

Learning Activity 1

Using student 02 on Chart A, complete the following information:

1. Language raw score 020
2. Total stanine _____
3. Non-language national percentile _____
4. Total raw score _____
5. Language stanine _____
6. Non-language IQ _____

Check your answers with those given on page I-A-10.

Learning Activity 2

Using the data for student Jerry Baker on Chart B on page I-A-8, complete the following information:

1. Language mental age 11 - 11
2. Non-language IQ _____
3. Total national percentile (grade) _____
4. Language reference scale score _____
5. Chronological age _____
6. Total mental age _____
7. Total IQ _____

Check your answers with those given on page I-A-10.

Learning Activity 3

Review the different students' scores reported on Chart A, page I-A-6. Check the types of scores given on the academic aptitude section of the test.

Learning Activity 3 (Continued)

1. _X_ Language national percentile rank
2. ____ Non-language IQ
3. ____ Total stanine
4. ____ Total IQ
5. ____ Obtained grade placement
6. ____ Language raw score
7. ____ Non-language national percentile rank
8. ____ Mental age
9. ____ Total raw score
10. ____ Chronological age

Check your answers with those given on page I-A-11.

ANSWERS TO LEARNING ACTIVITIES

Learning Activity 1

1. 020
2. 3
3. 17
4. 40
5. 3
6. 83

Learning Activity 2

1. 11-11
2. 115
3. 87
4. 479
5. 10-05
6. 12-08
7. 114

Learning Activity 3

1. X
2. X
3. X
4. _____ (Not included)
5. _____ (Not included in academic aptitude section)
6. X
7. X
8. _____ (Not included)
9. X
10. _____ (Not included on this printout)

I-A-12

Self-Assessment

Answer these questions on a separate sheet of paper.

1. Can you identify academic aptitude scores?

   YES _____ NO _____

2. Do you know what academic aptitude scores mean?

   YES _____ NO _____

3. Can you record academic aptitude scores in a usable form?

   Yes _____ No _____

If, after completing these activities, you are not sure you can identify academic aptitude scores, interpret the meaning of the scores and record them in a usable form, refer back to the various sections of Module A or secure a manual for the tests you are using and review the information supplied by it. If you had difficulty with the module, ask your supervisor to provide you with additional help.

PACKET I

DIAGNOSIS: COLLECTING AND RECORDING DATA

MODULE B

ACHIEVEMENT TEST DATA

INTRODUCTION

Achievement test data is probably the most common standardized test data available in Alabama schools. One reason for the common availability of achievement test data is the state testing program. The State of Alabama administers a complete achievement battery to students at the 4th, 8th, and 10th grade levels. The State Department of Education provides each school with a comprehensive analysis of both individual student data and group data. In many schools, data from the state testing program will form the nucleus of achievement test data. This guide will utilize data from the state testing program as a reference point for achievement test data collections.

An achievement test normally includes sections related to reading comprehension, reading vocabulary, arithmetic fundamentals, arithmetic reasoning, language mechanics, language usage and spelling. However, in some achievement tests, social studies, science, and use of reference materials are included. Each standardized achievement test has some unique characteristics which produce data that are different from data produced by other standardized tests. This diversity in achievement tests, created by the variety of instruments in print, makes it somewhat difficult to standardize a method of interpretation that will fit each test.

The collection and recording of standardized achievement test data will require that the participant use techniques and procedures that conserve the use of space and at the same time provide an adequate amount of information related to student performances. Data may be recorded in terms of grade placement, state or national percentile, stanine, decile, or raw scores. The type score used will depend on the particular reporting procedure used by the test company and the needs of the teachers involved. Some participants may prefer to use state or national norms reported in percentile ranks while others may prefer to use a norm reported in grade equivalency. Regardless of the manner in which scores are recorded, each participant should understand the procedure used and should be able to interpret them accurately.

As you proceed through this module, you should strive to adopt a form for recording achievement test data that will fit your requirements in terms of data available in your school and scores that you understand best.

Objective

Upon completion of the learning activities in Module B, and after surveying the achievement test data in the local school, the participant will be able to identify and record achievement test data in a form that can be used by the participant and interpreted and used by associates.

EXAMPLES OF ACHIEVEMENT TEST DATA

The following test data are designed to assist in recognizing achievement test scores in the areas of reading and mathematics. The achievement scores will contain raw scores, obtained grade placement or obtained grade equivalency, stanine, and national percentile rank. Definitions of those terms are included in the Glossary of Terms found in Module A.

CHART A
CALIFORNIA ACHIEVEMENT TEST
State Printout

PUPIL NAME / PUPIL ID			ACAD. APT.					READING						MATHEMATICS					
			RS	IQ	S	NP	*		RS	OGP	S	NP	*		RS	OGP	S	NP	*
	01	LANG	022	84	3	16	1	VOCAB	014	3.2	4	24	1	COMPUT	029	4.2	4	33	1
		NON-L	025	91	4	30		COMPRE	018	3.9	4	35		CONCPT	016	3.4	4	23	
		TOTAL	047		3	21		TOTAL	032	3.6	4	29		TOTAL	045	3.9	4	27	
	07	LANG	037	106	6	60	1	VOCAB	017	3.8	4	35	1	COMPUT	029	4.2	4	33	1
		NON-L	015	78	2	8		COMPRE	011	2.5	2	10		CONCPT	025	5.1	6	61	
		TOTAL	052		4	27		TOTAL	028	3.1	3	20		TOTAL	054	4.5	5	45	

KEY RS-RAW SCORE S-STANINE NP-NATIONAL PERCENTILE OGP-OBTAINED GRADE PLACEMENT
THE NUMBER BELOW THE ASTERICK(*) DENOTES THE NUMBER OF TESTS SCORED FOR THIS PUPIL.

STUDENTS NUMBER 01 AND 07 WERE TAKEN FROM A CLASS LIST FOR THE PURPOSE OF FACILITATING THE COMPLETION OF THIS LEARNING ACTIVITY.

The example of the California Achievement Test given on the preceding page includes data related to reading and mathematics achievement. Information in these sections include vocabulary, comprehension, and total reading scores in the reading section and computation, concepts, and total mathematics scores in the mathematics section. The scores in the reading and mathematics sections are reports in "RS" (raw score), "OGP" (obtained grade placement), "S" (stanine), and "NP" (national percentile). The asterisk (*) denotes the number of answer sheets scores for this student.

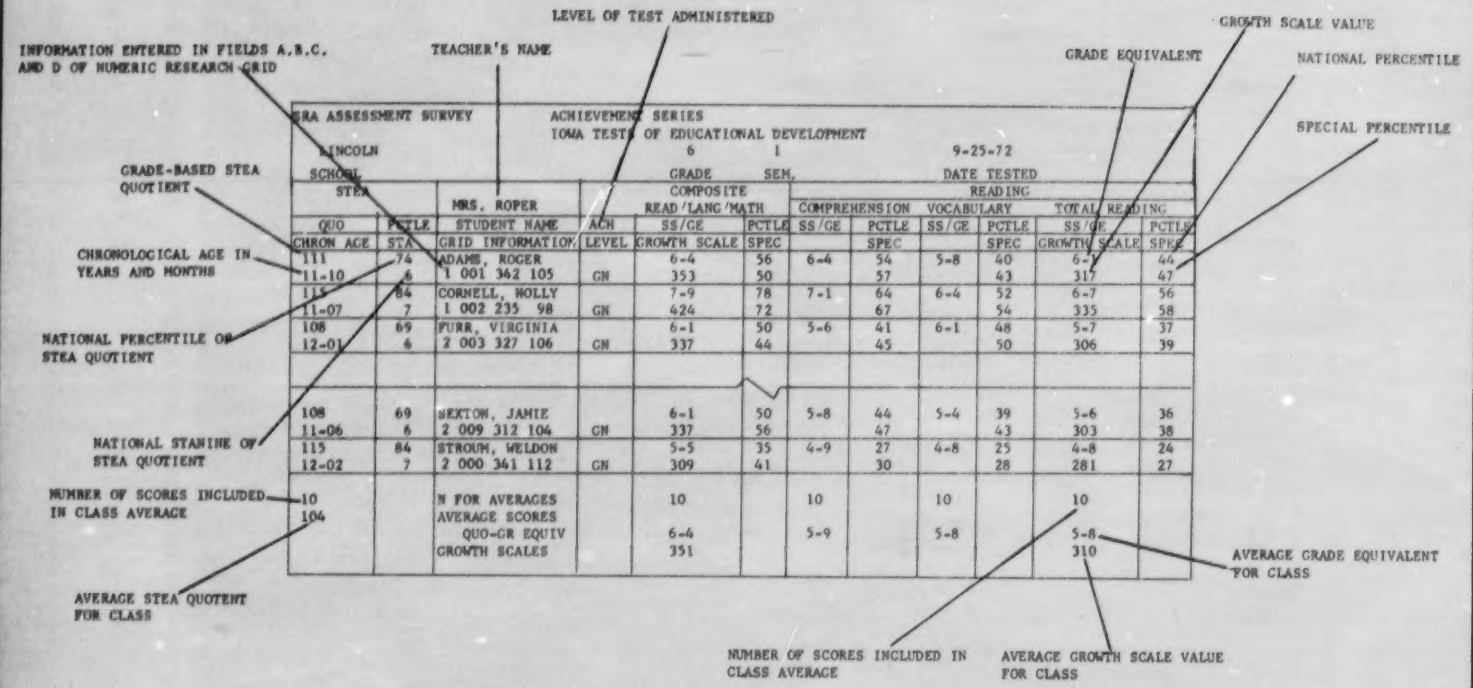
For example, notice student 01. Reading data for student 01 is reported in raw scores of 014 in reading vocabulary (indicating fourteen correct responses on this section of the test) and 018 in reading comprehension, thus giving a total of 032 correct responses on the reading section of the achievement test.

The second column in the reading section entitled "OGP" contains data related to the obtained grade placement. The student had an OGP of 3.2 on reading vocabulary, an OGP of 3.9 on reading comprehension, and an OGP of 3.6 on total reading. (The total OGP of 3.6 is not of a numerical average of the OGP's in vocabulary and comprehension.)

Data in the "S" column indicates stanines of 4 in the vocabulary, comprehension, and total reading. Data reported in the "NP" column are read by using the same procedure as in the previous columns.

Data in the mathematics section are reported in the same format as in the reading section. For example, the 029 reported in the "RS" column on the computation line indicates twenty-nine correct responses on mathematics items dealing with computation.

CHART B
SRA ACHIEVEMENT TEST
LIST REPORT OF SCORES (MULTI-LEVEL)


LEVEL OF TEST ADMINISTERED
INFORMATION ENTERED IN FIELDS A,B,C, AND D OF NUMERIC RESEARCH GRID
TEACHER'S NAME
GROWTH SCALE VALUE
GRADE EQUIVALENT
NATIONAL PERCENTILE
SPECIAL PERCENTILE
GRADE-BASED STEA QUOTIENT
CHRONOLOGICAL AGE IN YEARS AND MONTHS
NATIONAL PERCENTILE OF STEA QUOTIENT
NATIONAL STANINE OF STEA QUOTIENT
NUMBER OF SCORES INCLUDED IN CLASS AVERAGE
AVERAGE STEA QUOTENT FOR CLASS
AVERAGE GRADE EQUIVALENT FOR CLASS
NUMBER OF SCORES INCLUDED IN CLASS AVERAGE
AVERAGE GROWTH SCALE VALUE FOR CLASS

SRA ASSESSMENT SURVEY — ACHIEVEMENT SERIES — IOWA TESTS OF EDUCATIONAL DEVELOPMENT

LINCOLN SCHOOL — GRADE 6 — SEM. 1 — DATE TESTED 9-25-72

QUO / CHRON AGE	STEA PCTLE / STA	MRS. ROPER / STUDENT NAME / GRID INFORMATION	COMPOSITE READ/LANG/MATH ACH LEVEL	COMPOSITE READ/LANG/MATH SS/GE GROWTH SCALE	COMPOSITE READ/LANG/MATH PCTLE SPEC	READING COMPREHENSION SS/GE	READING COMPREHENSION PCTLE SPEC	READING VOCABULARY SS/GE	READING VOCABULARY PCTLE SPEC	READING TOTAL READING SS/GE GROWTH SCALE	READING TOTAL READING PCTLE SPEC
111	74	ADAMS, ROGER		6-4	56	6-6	54	5-8	40	6-5	44
11-10	6	1 001 342 105	GN	353	50		57		43	317	47
115	84	CORNELL, HOLLY		7-9	78	7-1	64	6-4	52	6-7	56
11-07	7	1 002 235 98	GN	424	72		67		54	335	58
108	69	FURR, VIRGINIA		6-1	50	5-6	41	6-1	48	5-7	37
12-01	6	2 003 327 106	GN	337	44		45		50	306	39
108	69	SEXTON, JAMIE		6-1	50	5-8	44	5-4	39	5-6	36
11-06	6	2 009 312 104	GN	337	56		47		43	303	38
115	84	STROUM, WELDON		5-5	35	4-9	27	4-8	25	4-8	24
12-02	7	2 000 341 112	GN	309	41		30		28	281	27
10		N FOR AVERAGES		10		10		10		10	
104		AVERAGE SCORES									
		QUO-GR EQUIV		6-4		5-9		5-8		5-8	
		GROWTH SCALES		351						310	

CHART B(1)
SRA ACHIEVEMENT TEST
LIST REPORT OF SCORES (MULTI-LEVEL)

	COMPOSITE		READING						MATHEMATICS					
	READ/LANG/MATH		COMP		VOCAB		T READ		CONCEP		COMP		T MATH	
STUDENT'S NAME	SS/GE	PCTLE	SS/GE	PCTLE	SS/GE	PCTLE	SS/GE	PCTLE	GE	PCTLE	GE	PCTLE	SS/GE	PCTLE
	GROWTH SCALE	SPEC		SPEC		SPEC		SPEC		SPEC		SPEC	GROWTH SCALE	SPEC
ADAMS, ROGER	6-4 353	56 50	6-4	54 57	5-8	40 43	6-1 317	44 47	9-1	89 77	8-6	84 76	8-8 406	89 78
CORNELL, HOLLY	7-9 424	78 72	7-1	64 67	6-4	52 54	6-7 353	56 58	10-9	94 82	10-6	95 87	10-7 441	96 85

"SPEC" IS REPORTED AS STANINE

CHART C
SRA ACHIEVEMENT TEST

READING

SRA ASSESSMENT SURVEY										
			COMPOSITE		READING					
			READ/LANG/MATH		COMPREHENSION		VOCABULARY		TOTAL READING	
	PCTLE	STUDENTS	SS/GE	PCTLE	SS/GE	PCTLE	SS/GE	PCTLE	SS/GE	PCTLE
CHRON AGE	STA		GROWTH SCALE	SPEC		SPEC		SPEC	GROWTH SCALE	SPEC
11-02		AMOS	5-2 299	39 4	3-4	13 3	3-8	16 3	3-6 239	14 3
11-07		LIGHT	3-9 233	12 3	3-6	16 3	2-5	5 2	3-1 211	8 2

MATHEMATICS

	MATHEMATICS					
	CONCEPTS		COMPUTATION		TOTAL MATH	
	GE	PCTLE SPEC	GE	PCTLE SPEC	SS/GE GROWTH SCALE	PCTLE SPEC
11-02 AMOS	5-4	43 5	5-1	35 4	5-3 292	39 4
11-07 LIGHT	2-3	2 1	4-4	20 3	3-8 230	9 2

STUDENTS NUMBER 02 AND 07 WERE TAKEN FROM A CLASS LIST FOR THE PURPOSE OF FACILITATING THE COMPLETION OF THIS LEARNING ACTIVITY.

Directions

Complete as many of the learning activities as you feel are necessary for you to be able to complete both an individual and a class achievement data sheet. Record your responses on the appropriate worksheets.

Learning Activity 1

Using student 07 on Chart A, page I-B-4, complete the following information:

1. Reading vocabulary raw score _____
2. Reading vocabulary national percentile _____
3. Mathematics computation obtained grade placement _____
4. Reading comprehension stanine _____
5. Total mathematics raw score _____
6. Mathematics computation stanine _____
7. Total reading obtained grade placement _____
8. Mathematics concepts national percentile _____

Check your answers with the answers given on page I-B-10.

Learning Activity 2

Using student Light on Chart C, page I-B-8, complete the following information:

1. Reading comprehension grade equivalency 3.6
2. Reading vocabulary stanine _____
3. Mathematics concepts grade equivalency _____
4. Total mathematics national percentile _____
5. Total reading growth scale _____
6. Reading comprehension national percentile _____

7. Mathematics computation stanine _____

8. Reading vocabulary grade equivalency _____

Check your answers with the answers given on page I-B-10.

ANSWER SHEET

Learning Activity 1

1. 017
2. 35
3. 4.2
4. 2
5. 054
6. 4
7. 3.1
8. 61

Learning Activity 2

1. 3.6
2. 2
3. 2.3
4. 9
5. 211
6. 16
7. 3
8. 2.5

Self-Assessment Answer these questions on a separate sheet of paper.

1. Can you identify achievement test scores?

   YES _____ NO _____

2. Do you know what achievement scores mean?

   YES _____ NO _____

3. Can you record achievement test data accurately?

   YES _____ NO _____

If you experienced difficulty in this Module, consult examiner's manuals for the California Achievement Test, Metropolitan Achievement Test, Stanford Achievement Test, and SRA Achievement Test for additional information. Examiner's manuals can be obtained from the school counselor or the local board of education. If you need further assistance, ask your supervisor to provide you with additional help.

PACKET I

DIAGNOSIS: COLLECTING AND RECORDING DATA

MODULE C

PERSONAL DATA

INTRODUCTION

The physical, mental, and emotional problems of the student must be considered in diagnosing and prescribing activities related to the acquisition of knowledge or skills. The student's background, interests, health, and social adaption within the family and the school can greatly affect his educational progress.

The collection, tabulation, and constant use of information concerning each student are necessary functions of any diagnostic/prescriptive teaching method.

Objective I

The participant will be able to construct a personal data sheet which will include pertinent information about the student in the areas of background, interests, health, and social and emotional development.

Objective II

The participant will demonstrate the ability to acquire necessary personal data from students by completing the personal data forms on a student while maintaining a friendly, cooperative attitude between the participant and student.

Directions

Proceed to the learning activities intended to familarize you with the preparation of personal data forms and the procedure for obtaining the information to be included thereon.

Learning Activity 1

Construct a list of factors in the fields of family background, student interests, health considerations, and social and emotional problems which have been observed to be relevant to the achievement of educational goals by students. Record these on Worksheet #1.

WORKSHEET #1

Family Background_____

_____

_____

Student Interests_____

_____

_____

Health_____

_____

_____

Social Problems_____

_____

_____

Emotional Problems_____

_____

_____

(Compare your responses with Personal Data Sheets I and II on Pages I-C-3 through I-C-7.)

PERSONAL DATA SHEET I

Date of Birth Mo.___Da.___Yr.___ Address_____ Telephone No._____

Father or Guardian	Education	Occupation	Mother or Guardian	Education	Occupation

Father and Mother Date_____	Father and Stepmother Data_____	Mother and Stepfather Data_____	Guardian Data_____	Other Data_____	No. of Brothers - Sisters Older _____ _____ Younger_____ _____

Significant Items from Elementary Record

Achievement	Days Absent	Personal Traits
1.		
2.		
3.		
4.		
5.		
6.		

Elementary Health Record

1._____
2._____
3._____
4._____
5._____
6._____

Personal Characteristics (Teacher Ratings)

	7	8	9	10	11	12
Responsibility						
Creativeness						
Influence						
Adjustability						
Concern for Others						
Seriousness of Purpose						
Personal Appearance						
Emotional Stability						
8.						
9.						

High School Health Record

	Clubs
1.	
2.	
3.	
4.	
5.	
6.	

Work Experience

Employer	Type of Work	From-To	Comments

Vocational Preference

7._____ 8._____
9._____ 10._____
11._____ 12._____

Further Education

Institution	Date Entered	Subject	Field Degree

Code: (S) Superior (Ab.A) Above Average
(A) Average (Bl.A) Below Average (I) Inferior

Health Code: (1) Height and Weight (2) Vision (3) Hearing (4) Teeth and Gums (5) Speech Defects (6) Posture and Feet (7) Skin and Scalp (8) Absence Due to Illness (9) Serious Illnesses or Injury (10) Medical Limitations on Physical Activities

I-C-4

PERSONAL DATA SHEET II

Name_____
Grade_____

Confidential Information About Myself

My Family And I

1. My birth date was_____. I was born in_____.
   (month, day, year) (city, state)
2. My present address is _____. My telephone No. is_____.
3. I live with my (Father, Mother, Both, Other) _____.
4. My father and mother are (living together, separated, divorced) .
5. Here is a summary of important facts about my parents:

   Father's Name_____Mother's Name_____

	Living	Age	Occupation	Education	Working Hours
Father	Yes No	___	_____	_____	_____
Mother	Yes No	___	_____	_____	_____

6. When I grow up, my father wants me to become a_____.
   My mother wants me to become a_____.
7. I have ____Brothers and ____Sisters. Here is a summary of important information about them:

Name	Age	Living at Home	Grade In School	Occupation
_____	____	_____	_____	_____
_____	____	_____	_____	_____
_____	____	_____	_____	_____

Note: Use the bottom of this sheet if you do not have enough spaces to complete the section above.

8. My regular jobs at home are_____.
9. Sometimes I help my parents by_____.
10. I receive a regular allowance YES NO . Amount $_____.
    How often?_____.

PERSONAL DATA SHEET II (CONTINUED)

School Activities

1. Last year, I joined these school activities _____ (clubs).
2. This year, I have joined these school activities _____ (clubs).
   My favorite is _____.
3. I _____ (do, do not) like to dance. I _____ (do, do not) like assembly programs.
4. I _____ (have, have not) been a class officer. I _____ (have, have not) been an officer in some organization.
5. I have _____ friends in this school. The name of my best friend is _____. He or she goes to _____ and is in the _____ grade. The thing we like most to do together is _____.

My Out-Of-School Activities

1. Here is a summary of important information about the clubs and organizations I belong to which are not part of my school program.

(Sunday School) Name	Multi-Age Church Group Meets How Often	(Scouts) What Time?	(Others) The Thing I Like Most About It Is

2. I go to the movies about _____ night(s) a week. I am usually expected to be home by _____ o'clock. My parents let me out of the house about _____ night(s) a week.
3. When I am out with my friends, the things we like to do most are _____
4. I spend about _____ hours a day watching television.
5. I earn money by _____. I usually work about _____ hours per week. Other things I have done in order to earn money are _____.
6. My hobbies are _____

PERSONAL DATA SHEET II (CONTINUED)

My School Work in Other Years

1. I have gone to _____schools. Here is a summary of important information about them.

Name of School	City, State	My Last Teacher's Name	Grades I Attended

Note: If you need more space, use the back of this sheet. If you do so, please check here. ( )

2. I skipped the_____grades. I repeated the_____
(none,one,two,etc.) (first,second,
____grade.
etc.)

3. Here is a summary of important information about subjects I have taken.

I Liked Best	I Liked Least	I Found Hardest	I Found Easiest

4. I have always taken English, social studies, and mathematics. Of these subjects, the one I liked best was_____. The one I liked least was_____. The one I found hardest was_____. The easiest was_____.

5. In general, I_____ reading. When compared to others in my
(like,dislike)
room, I think my reading is_____
(fair,good,poor)

6. In general, I_____school. In the past, I have missed about
(like,dislike)
_____days in school each year.

My Study Habits

1. I usually study about____minutes a day at school and about_____ minutes at home. I_____have a room of my own in which to
(do,do not)
study. I_____have a quiet place to study at home. I usually
(do, do not)
work in the same place at home every time I study. YES____NO____

2. The subject I have to study most is_____.

3. I have a definite plan for studying. YES____NO____. It_____
(is,is not)
easy for me to concentrate when I study.

4. I_____feel I need help in developing better study habits.
(do,do not)

PERSONAL DATA SHEET (CONTINUED)

My Health

1. My present health is _____ (excellent, fair, poor).

2. I _____ (have, have not) been sick during my life. The longest I have ever been sick was _____ days or about _____ weeks.

3. I _____ (do, do not) wear glasses. I _____ (am, am not) hard of hearing.

4. The last time I had a physical examination was _____ (year).

5. I _____ (do, do not) have a physical handicap. It is _____.

6. I _____ (do, do not) worry about my health. The name of our family doctor is _____.

Check the following (Use the code: 1. Good 2. Needs Attention 3. None)

Eyes _____ Headache _____
Hearing _____ Fainting Spells _____
Speech _____ Stuttering _____
Teeth _____ Vomiting _____
Posture _____ Physical Abnormalities _____
Personal Adjustment _____

General Physical Condition _____

7. Problems I would like to discuss with the school counselor are _____
_____
_____
_____

Learning Activity 2

Construct a data sheet for collecting the information which you identified in Learning Activity 1. (Discuss your data sheet with your supervisor.)

Learning Activity 3

Interview a student (role-play using another participant as student) and record personal data on the data sheet constructed in Learning Activity 2. Following the interview, discuss with the student his feeling relative to the entire process and the individual questions. (No Answer Sheet.)

Self-Assessment (Answer These Questions On a Separate Sheet of Paper)

1. Does the personal data sheet which you constructed in Activity 2 include all the pertinent questions needed to evaluate the influence of the student's personal life and attitudes on his learning situation?

YES_____ NO_____

2. Can you collect and record appropriate personal data from students?

YES_____ NO_____

If you answered both of the above questions in the affirmative, proceed to the next module. If you did not answer "Yes" to both questions, ask your supervisor to provide you with additional help.

PACKET I

DIAGNOSIS: COLLECTING AND RECORDING DATA

MODULE D

OTHER DATA

INTRODUCTION

Experienced teachers have long realized that no two students learn in the same manner. This realization has led educators to search for new and better techniques of instruction. The use of such techniques as the inquiry approach, individualization, teacher involvement, small group instruction, large group instruction, and multi-media and contract learning, make it evident that there is no single panacea. However, a combination of these techniques based upon the manner a student learns best seems to offer possibilities. The question of how a student learns best is difficult and no one method, at present, will answer it.

Learning is a complex task of total human development, therefore, the teacher must attempt to identify the individual student's readiness for learning, his academic aptitude, and the learning methods by which he excells.

Currently, instrumentation is available for monitoring learning readiness, achievement level, and academic aptitude. The realm dealing with learning preferences is more evasive. As a result much knowledge in this area is dependent on accurate observation by the teacher. Most teachers who are proficient in the teaching-learning process have and capitalize on their own system of observing the learning methods used by students.

Objective I

After completing the Learning Activities in this module, the participant will be able to plot a learning preference profile for three or four hypothetical students using the included checklist.

Learning Activity 1

Using the Learning Preference Checklist on the following pages, which has been completed for an imaginary student, plot a Profile for Learning Preference using worksheet #1 on page I-D-5.

(Check your responses with the answers given on page I-D-10.)

Learning Activity 2

Using your Profile completed in Learning Activity 1, list specific activities which might be appropriate for the student.

(Check your responses with the answers given on page I-D-11.)

STUDENT'S NAME_____GRADE_____DATE_____

LEARNING PREFERENCE CHECKLIST

Directions: Over a period of time, observe the student's reactions to the following activities. Record these reactions on this individual student's checklist. When the checklist is completed, transfer your observations to the profile sheet to assist in organizing the student's learning preferences.

YES NO

___ ___ 1. Does the student prefer to use audio-visual materials by himself?

___ ___ 2. Does the student prefer to work alone on a report?

___ ___ 3. Does the student prefer to work by himself on a project or experiment?

___ ___ 4. Does the student prefer to work by himself on class assignments?

___ ___ 5. Does the student prefer to work with you on an assignment?

___ ___ 6. Does the student prefer to listen to you explain the class assignment?

___ ___ 7. Does the student prefer to watch you do an experiment or demonstration for the class?

___ ___ 8. Does the student prefer to watch and listen as you explain a film being shown to the class?

___ ___ 9. Does the student prefer to assist a classmate who is having trouble with an assignment?

___ ___ 10. Does the student prefer to work with a group of classmates on an assignment but lets someone else make the decisions?

___ ___ 11. Does the student prefer to do an experiment or demonstration with a group of classmates?

___ ___ 12. Does the student prefer to use some audio-visual material with a group of classmates?

YES NO

___ ___ 13. Does the student prefer to serve in a leadership role in a group of classmates?

___ ___ 14. Does the student prefer to take part in class discussions?

___ ___ 15. Will the student normally volunteer to do an experiment or demonstration for the entire class?

___ ___ 16. Will the student volunteer to be a leader in either a panel or class discussion?

___ ___ 17. Will the student agree without coercion to give a speech to the class?

___ ___ 18. Does the student prefer you to give a set way to solve a problem?

___ ___ 19. Does the student usually prefer to follow a step-by-step procedure such as one outlined in the textbook or given by you to work a problem or complete an assignment?

___ ___ 20. Will the student usually read or think about a problem before trying to solve it?

___ ___ 21. Does the student normally prefer to solve a problem his own way rather than following your directions or the directions outlined in a book?

___ ___ 22. Does the student normally attempt to solve a problem without first reading or studying the material necessary to solve a problem?

___ ___ 23. If you gave the student a puzzle or toy complete with instructions, would the student attempt to put it together without reading the instructions first?

WORKSHEET #1
PROFILE FOR LEARNING PREFERENCE CHECKLIST

Name_____ Grade_____ Date_____

Circle the number that tells the observed number of "yes" answers that you had in each group. The groups and statements in each group are listed below. For example, statements 1-4 are in group A-Independent Activities. Draw a line connecting the circles.

A Statements (1-4) Independent Activities	B Statements (5-8) Teacher Involvement	C Statements (9-12) Group Activities	D Statements (13-17) Leadership	E Statements (18-20) Structured	F Statements (21-23) Unstructured
			5		
4	4	4	4	3	3
3	3	3	3		
2	2	2	2	2	2
1	1	1	1	1	1
0	0	0	00	0	0

I-D-6

WORKSHEET #2

STUDENT'S NAME_____GRADE_____DATE_____

LEARNING PREFERENCE CHECKLIST

Directions: Over a period of time, observe the student's reactions to the following activities. Record these reactions on an individual student's checklist. When the checklist is completed, transfer your observations to the profile sheet to assist in organizing the student's learning preferences.

YES	NO		
___	___	1.	Does the student prefer to use audio-visual materials by himself?
___	___	2.	Does the student prefer to work alone on a report?
___	___	3.	Does the student prefer to work by himself on a project or experiment?
___	___	4.	Does the student prefer to work by himself on class assignments?
___	___	5.	Does the student prefer to work with you on an assignment?
___	___	6.	Does the student prefer to listen to you explain the class assignment?
___	___	7.	Does the student prefer to watch you do an experiment or demonstration for the class?
___	___	8.	Does the student prefer to watch and listen as you explain a film being shown to the class?
___	___	9.	Does the student prefer to assist a classmate who is having trouble with an assignment?
___	___	10.	Does the student prefer to work with a group of classmates on an assignment but lets someone else make the decisions?
___	___	11.	Does the student prefer to do an experiment or demonstration with a group of classmates?
___	___	12.	Does the student prefer to use some audio-visual materials with a group of classmates?

YES	NO		
___	___	13.	Does the student prefer to serve in a leadership role in a group of classmates?
___	___	14.	Does the student prefer to take part in class discussions?
___	___	15.	Will the student normally volunteer to do an experiment or demonstration for the entire class?
___	___	16.	Will the student volunteer to be a leader in either a panel or class discussion?
___	___	17.	Will the student agree without coercion to give a speech to the class?
___	___	18.	Does the student prefer you to give him a set way to solve a problem?
___	___	19.	Does the student usually prefer to follow a step-by-step procedure such as one outlined in the textbook or given by you to work a problem or complete an assignment?
___	___	20.	Will the student usually read or think about a problem before trying to solve it?
___	___	21.	Does the student normally prefer to solve a problem his own way rather than following your directions or the directions outlined in a book?
___	___	22.	Does the student normally attempt to solve a problem without first reading or studying the material necessary to solve a problem?
___	___	23.	If you gave the student a puzzle or toy complete with instructions, would the student attempt to put it together without reading the instructions first?

Learning Activity 3

Recall a student you have taught this year or in a previous year and rate him on the Learning Preference Checklist, found on pages I-D-6 and I-D-7. If you have not taught previously, work with an experienced teacher to obtain the data necessary to complete this activity.

Learning Activity 4

Organize data from the checklist (worksheet #2 on pages I-D-6 and I-D-7) in terms of the categories listed on the Profile for Learning Preference Checklist. Record this information on the profile sheet included as Worksheet #3 (page I-D-9) and then connect the sections to form a line profile for the sample student.

Learning Activity 5

Select another participant and discuss your Learning Preference Profiles in terms of specific activities which might be included for each student.

WORKSHEET #3
PROFILE FOR LEARNING PREFERENCE CHECKLIST

Name_____ Grade_____ Date_____

Circle the number that tells the observed number of "yes" answers that you had in each group. The groups and statements in each group are listed below. For example, statements 1-4 are in group A-Independent Activities. Draw a line connecting the circles.

A Statements (1-4) Independent Activities	B Statements (5-8) Teacher Involvement	C Statements (9-12) Group Activities	D Statements (13-17) Leadership	E Statements (18-20) Structured	F Statements (21-23) Unstructured
			5		
4	4	4	4	3	3
3	3	3	3		
2	2	2	2	2	2
1	1	1	1	1	1
0	0	0	0	0	0

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ANSWERS TO ACTIVITIES

Answer Sheet for Activity #1

PROFILE FOR LEARNING PREFERENCE CHECKLIST

Name_____ Grade_____ Date_____

Circle the number that tells the observed number of "yes" answers that you had in each group. The groups and statements in each group are listed below. For example, statements 1-4 are in group A-Independent Activities. Draw a line connecting the circles.

A Statements (1-4) Independent Activities	B Statements (5-8) Teacher Involvement	C Statements (9-12) Group Activities	D Statements (13-17) Leadership	E Statements (18-20) Structured	F Statements (21-23) Unstructured
			5		
4	(4)	4	4	(3)	3
3	3	3	3		
2	2	2	2	2	2
(1)	1	(1)	(1)	1	(1)
0	0	0	0	0	0

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ANSWER SHEET FOR LEARNING ACTIVITY 2

Activities for a student profile high in teacher-directed activities and structure.

1. Teacher presentation to a large group.
2. Teacher-directed discussion in a large group.
3. Watch film or filmstrip with teacher direction.
4. Individual teacher instruction.
5. Build a model with a teacher's assistance.
6. Teacher-directed small group activity.
7. Teacher assistance to a small group or an individual in developing charts, diagrams, and bulletin boards.
8. Teacher-conducted drill activity.
9. Teacher presentation using multi-media.
10. Teacher assistance in games and simulation.

Self-Assessment (Answer these questions on a separate sheet of paper.)

1. Could you effectively observe a student's reactions to activities related to each item of the Learning Preference Checklist?

   YES_____NO_____

2. Could you organize a group of teaching-learning activities using the Learning Preference Profile?

   YES_____NO_____

If you answered the previous questions in the affirmative, proceed to the next module. If you did not answer "yes" to both questions, ask your supervisor to provide you with additional help.

PACKET I

DIAGNOSIS: COLLECTING AND RECORDING DATA

MODULE E-1

READING: NORM REFERENCED TESTS

INTRODUCTION

The California Achievement Test (CAT) is a norm-referenced test. In Module B of Packet I, the CAT was discussed, and grade levels in broad areas of reading were charted. In the following learning activities, a further breakdown of this test is possible through an item analysis. By using this format, the CAT can be used as a diagnostic instrument. It must be remembered, however, that an achievement test is an achievement test first. It was designed as such and will not give as thorough information for skills anlaysis as will a true diagnostic test.

Objectives

After completing the learning activities in this module, the participant will be able to:

1. Locate the reading data on the CAT Student Item Analysis printout.
2. Interpret these data with reference to the Item Analysis Sheet.
3. Record these data from the printout to the Individual and Group Profile Sheet.
4. Use the profile sheet in diagnosing a child's strengths and weaknesses in each of the skills.
5. List the norm-referenced tests available in his/her own school system to test a child in reading.

Directions

Complete as many of the learning activities as you feel are necessary for you to know how to identify, record and interpret data on the CAT Student Item Analysis printout. Score yourself on the self-assessment sheet at the end of the module.

Supportive Information

1. Attached are copies of the:
   a. CAT Student Item Analysis printout (pages I-E1-4)
   b. CAT 70 - Level III - Form A Item Analysis for Reading Comprehension and Vocabulary (pages I-E1-5 and I-E1-6)
   c. CAT 70 - Individual and Group Profile - Reading (pages I-E1-7 and I-E1-8)
2. Study the CAT Student Item Analysis printout and note the following suggestions before proceeding to the learning activities.
   a. Reading scores including Raw Score, obtained grade equivalent and national percentile, appear in the first row of data.
   b. Reading scores on individual test items appear under two major headings: Vocabulary and Comprehension.
   c. Test items may appear under more than one heading. For instance, Item #1 under Comprehension appears as Facts under Table of Contents as well as general Facts under Comprehension.
   d. A plus (+) symbol indicates a correct response; a minus (-) symbol indicates an incorrect response; and the absence of either symbol indicates no response.

3. Study the Item Analysis for Reading Comprehension on pages I-E1-5 and I-E1-6. This form provides a breakdown of the item numbers on the Student Item Analysis printout, and the number of items which must be answered correctly to meet national norms at grade levels (4.7) (5.7) (6.7).

4. Study the Individual and Group Profile Sheets on pages I-E1-7 and I-E1-8. This form is for a teacher to use in recording class scores. It should point out areas of weakness for individuals and for the class as a whole. It helps the teacher to group children for instruction.

5. CAT Student Item Analysis printouts, similar to the attached, are available in your system for those grades included in the State testing program.

INDIVIDUAL TEST RECORD

Published by CTB/McGraw-Hill, Del Monte Research Park, Monterey, California 93940

LEVEL 3 FORM A

CALIFORNIA ACHIEVEMENT TESTS 1970 EDITION

NAME ▶ Press, Dianne | TEACHER ▶ | BATCH ▶ 2771

SCHOOL ▶ | GRADE ▶ 4.0 | GROUP ▶ 005

CITY ▶ | DATE OF TESTING ▶ 09/75 | RUN DATE ▶ 10/18

ERROR CODES 3	RAW SCORE	GE			NATL PCT	NATIONAL PERCENTILES (1 2 3 5 10 15 20 30 40 50 60 70 80 90 95 98 99)
READING Vocabulary	10	2.4			16	XXXXX
READING Comprehension	6	1.4			3	XXXXXX
TOTAL READING	16	1.7			5	XXXX
MATHEMATICS Computation	18	3.0			15	XXXXX
MATHEMATICS Concepts & Problems	6	1.7			4	XXXXX
TOTAL MATHEMATICS	24	2.4			6	XXXX
LANGUAGE Mechanics						
LANGUAGE Usage & Structure						
TOTAL LANGUAGE						
SPELLING						
TOTAL BATTERY						

Vocabulary

Comprehension

ref skills | soc studies | science | general | math | facts | interpretation | relation | generalization | inference

Computation (whole numbers)

addition | subtraction | multiplication | division | regrouping | 2 - digit | 3 - digit | 4 - digit

Computation (whole numbers)

sent & express | operations with zero | mass | 3 & 4 addend

Computation (fractions)

add | subt | mult | div | horizontal | converting to mixed | converting to improper | whole no | same denominators | different denominators | common | 2 - digit

Compu (fractions)

reduce | mixed

Concepts

money rec | no word | place value | number order | symbols | language | sent & express | Perm rem | area | mass | frac | geom

Problems

add | subt | mult | div | 2-step | graph | ratio | mass | avg

Mechanics Capitalization

beginning words: sentence | verse | quote

proper noun | titles | pron I | no error

Mechanics

series | commas: interrupt | cls | date ad | correc | periods: sentence | abbrev | ? | poss | apostrophe: contrac | quotes | no error

Punct I | 10 15 19 25 | 24 28 | 6 | 2 3 29 | 4 30 | 17 21 27 | 1 8 20 | 25 | 16 | 5 7 13 22 | 12 14 | 9 18

Punct II (Position) | | 1 8 12 | | 3 | | 2 6 | 4 | 10 | 11 | | 7 9 | 11 23

(Choice) | | 1 8 12 | | 3 | | 2 6 | 4 | 10 | 11 | | 7 9 | 5

Usage and Structure

standard English: case | verb | verse | usage | sent correct | struc incomp | sentence parts & func: verb | modif | phrase | transform

Spelling

letter rev | suffix | 2 word | vowel + r | mis-pron | silent letter | multi- and common | dbl con | internal vowel | no error

CAT-A3-ITR 81211

74

C.A.T. 70
LEVEL 3 - FORM A

READING - COMPREHENSION

ITEM ANALYSIS

SKILLS	ITEM NUMBERS	NUMBER OF ITEMS NEEDED TO MEET NATIONAL NORMS AT GRADE LEVELS		
		4.7	5.7	6.7
VOCABULARY				
Word Recognition	1-40	21	26	29
REFERENCE SKILLS				
Table of Contents				
Facts	1, 2	2	3	3
Interpretation	3	1	1	1
Index				
Facts	4, 5, 6	2	2	2
READING COMPREHENSION				
Facts	1, 2, 4-6, 9, 14, 18, 26, 28	7	8	9
Interpretation	3, 10, 12, 16, 17, 21, 24, 25, 27, 29, 35-38, 40	8	10	11
Relationships	19, 20, 22, 32	1	2	2
Generalizations	7, 11, 15, 23, 30, 31, 39 41, 42	3	4	5
Inferences	8, 13, 33, 34	2	2	2

C.A.T. 70
LEVEL 3 - FORM A
CONTINUED

SKILLS	ITEM NUMBER	GRADE LEVELS		
		4.7	5.7	6.7
Social Studies				
Facts	9	1	1	1
Interpretation	10, 12	1	1	2
Relationships	None	0	0	0
Generalizations	7, 11	1	1	2
Inferences	8, 13	1	1	1
Science				
Facts	14, 18	1	1	2
Interpretation	16, 17, 21	1	2	2
Relationships	19, 20, 22	1	1	1
Generalizations	15, 23	1	1	1
Inferences	None	0	0	0
General				
Facts	26, 28	1	1	2
Interpretation	24, 25, 27, 29	3	4	4
Relationships	32	0	1	1
Generalizations	30, 21	1	1	1
Inferences	33, 34	1	1	1
Mathematics				
Fact	None	0	0	0
Interpretation	35, 36, 37, 38, 40	3	3	3
Relationships	None	0	0	0
Generalizations	39, 41, 42	1	1	1
Inferences	None	0	0	0

C.A.T. ANALYSIS
LEVEL 3 - FORM A
408120-0640-1M-205-0 74AL

READING

OBTAINED GRADE PLACEMENT	STUDENT NAME	ABOVE OR BELOW G. P.	REFERENCE SKILLS			COMPREHENSION SKILLS					SOCIAL STUDIES SUB-SKILLS				
			TABLE OF CONTENTS		INDEX										
			(3) FACTS	(1) INTERPRETATION	(3) FACTS	(11) FACTS	(15) INTERPRETATION	(4) RELATIONSHIPS	(9) GENERALIZATIONS	(4) INFERENCES	(1) FACTS	(2) INTERPRETATIONS	(0) RELATIONSHIPS	(2) GENERALIZATIONS	(2) INFERENCES

C.A.T. ANALYSIS
LEVEL 3 – FORM A

READING (Continued)

STUDENT NAME	SCIENCE SUB-SKILLS					GENERAL SUB-SKILLS					MATHEMATICS SUB-SKILLS					VOCABULARY
	(2) FACTS	(3) INTERPRETATIONS	(3) RELATIONSHIPS	(2) GENERALIZATIONS	(0) INFERENCES	(2) FACTS	(5) INTERPRETATIONS	(1) RELATIONSHIPS	(2) GENERALIZATIONS	(2) INFERENCES	(0) FACTS	(5) INTERPRETAIONS	(0) RELATIONSHIPS	(3) GENERALIZATIONS	(0) INFERENCES	(40)

Learning Activity 1

Using the CAT Student Item Analysis Printout on Page I-E1-4, study the hypothetical information given and write the answers to the following questions on a separate sheet of paper.

a. How many Vocabulary questions were in the test?

b. How many correct answers did Diane give in Vocabulary?

c. There is one section shown on the printout that is headed "Math," but it is actually part of the Reading test. Identify this section by row and location on the printout.

d. How many incorrect answers did Diane get in Inferences?

Check your answers with those given on page I-E1-12.

Learning Activity 2

Refer to the "Item Analysis" sheet for reading on page I-E1-5. Study the coordination of the numerals listed in the column "Item Number" with the test items shown on the computer printout.

Write the answers to the following questions on a separate sheet of paper.

a. The word "facts" appears several times in the Skills column on the Item Analysis Sheet. Which item numbers refer to facts connected with an index?

b. Word Recognition Skills are grouped under Vocabulary on the Item Analysis Sheet. Which test item numbers are included in this section?

c. How many items are there under Social Studies which have to do with Relationships?

d. Which item numbers refer to General Inferences?

e. How many questions should a fourth grade child be able to answer correctly at the end of the school year to meet the national norms in:

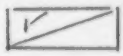
1) Interpretation in the Reading Comprehension section?

2) Relationships in the Social Studies section?

3) Word Recognition in the Vocabulary section?

Check your answers with those given on page I-EI-12.

Learning Activity 3

Using the information given on the CAT Student Item Analysis print-out and the CAT Item Analysis sheet for Reading, fill in for Diane Press the CAT Individual and Group Profile form provided by your supervisor. Pretest figures should be entered here  . The lower half of the space is reserved for posttest scores.

For comparison purposes, transfer the number of items needed to meet national norms from the Item Analysis for Reading (4.7) on page I-E1-4 and I-E1-5 to the corresponding section of the Individual and Group Profile - Reading, pages I-E1-6 and I-E1-7. Write the figures with a red pen above the black ones in parentheses. The figures in parentheses represent the total number of items in each category.

For example: On the first page of the Item Analysis Sheet (CAT 70 Level 3, Form A), the number of items needed to meet national norms at grade 4.7 for Facts under the Table of Contents is 2. On page I-E1-4, the total number of items shown on the Individual and Group Profile for Facts under Table of Contents is 3. Record a red 2 above the (3). This

will give you a clear picture of how Diane's scores compare with what is expected.

In analyzing a child's score, always take into consideration whether a child constantly made no responses. It should be recorded whether it was due to a lack of time, or whether the child simply did not understand the concepts.

Check your answers with those given on page I-E1-13.

Learning Activity 4

From the completed student printout from Learning Activity 3, indicate the strengths and weaknesses of this student's test.

Check your answers with those given on page I-E1-12.

ANSWERS TO LEARNING ACTIVITIES

Learning Activity 1

a. No response

b. 40

c. 10

d. Fifth section in row under Comprehension.

e. 3

Learning Activity 2

a. 4-5-6

b. 1-40

c. Not any

d. 33-34

e. 1) 8
2) Not any
3) 21

Learning Activity 3 (See page I-E1-13).

Learning Activity 4

It is indicated from the test printout that Diane's Reading vocabulary OGE score was at 2.4 and Reading comprehension OGE score was 1.4 and total OGE score for Reading was 1.7. The individual skill areas reflect an overall weakness in reading comprehension. A general weakness is indicated with reference skills and determining facts and interpretation of reading for comprehension. Her test scores reflect some strength in the areas of relationships, inferences, and generalizations. Although weak in vocabulary, Diane has indicated more strength in this section as compared to comprehension.

In viewing the Individual Test Record for Diane, she attempted all items in Comprehension and all Vocabulary items up to Item 25 before time was probably called on the section. However, before decisions may be reached, the teacher should administer an informal reading inventory and word-recognition test.

Answers to Learning Activity 3

READING

OBTAINED GRADE PLACEMENT	STUDENT NAME	REFERENCE SKILLS			COMPREHENSION SKILLS					SOCIAL STUDIES SUB-SKILLS				
		TABLE OF CONTENTS		INDEX										
		2	1	2	7	8	1	3	2	1	1	0	1	1
		(3) Facts	(1) Interpretation	(3) Facts	(11) Facts	(15) Interpretations	(4) Relationships	(9) Generalizations	(4) Inferences	(1) Facts	(2) Interpretations	(0) Relationships	(2) Generalizations	(2) Inferences
1.7	Dianne Press	0	0	1	1	1	1	2	1	0	0	0	0	1

READING (Continued)

SCIENCE SUB-SKILLS					GENERAL SUB-SKILLS					MATHEMATICS SUB-SKILLS					VOCABULARY
1	1	1	1	0	1	3	0	1	1	0	3	0	1	0	21
(2) Facts	(3) Interpretations	(3) Relationships	(2) Generalizations	(0) Inferences	(2) Facts	(5) Interpretations	(1) Relationships	(2) Generalizations	(2) Inferences	(0) Facts	(5) Interpretations	(0) Relationships	(3) Generalizations	(0) Inferences	(40)
0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	10

SELF-ASSESSMENT

Write the answers to the following questions on a separate sheet of paper.

1. Can you locate the reading data on the CAT Student Item Analysis printout?
2. Can you interpret these data in reference to the Item Analysis sheet?
3. Can you record these data from the printout to the Individual and Group Profile sheet?
4. Using the profile sheet, can you diagnose a child's strengths and weaknesses in each of the skills?

If you answered all of the above in the affirmative, proceed to the next module.

If you did not answer "yes" to each question, ask your supervisor to provide you with additional help.

PACKET I

DIAGNOSIS: COLLECTING AND RECORDING DATA

MODULE E-2

INFORMAL READING TESTS

INTRODUCTION

The major purposes of an Informal Reading Inventory (IRI) are to determine specific reading difficulties and reading levels for the individual student. The teacher must know the performance or instructional level for each student. The IRI is a technique which helps determine the independent, performance or instructional, frustration, and capacity reading levels for each student. It is a useful tool in helping diagnose specific reading needs. A checklist for oral reading can be used with the Informal Reading Inventory to determine reading needs in this area.

Objectives

After completing the learning activities in this module, the participant will be able to:

1. Compile graded word lists from basal readers to be used as a part of an Informal Reading Inventory.
2. Compile graded reading paragraphs using basal readers to construct an Informal Reading Inventory.
3. Administer the Informal Reading Inventory by using the graded word lists and oral reading paragraphs.
4. Identify the independent, performance or instructional, frustration, and capacity level for each student using Betts' criteria.
5. Provide a scheme for classifying reading levels that best meets the needs of the participant's students.
6. Select or prepare an oral reading checklist.

Directions

Review the objectives and steps in constructing, administering, and evaluating the graded word lists and graded oral reading paragraphs to develop an Informal Reading Inventory in the first four activities. (Included in the Resource Packet are examples of word lists by grades and graded reading paragraphs that may be duplicated.) Activity 5 includes suggestions and examples of checklists for oral reading to assist the participant in developing his/her own checklist.

Supportive Information

Suggestions for use of the learning activities in this module:

Activity 1 - Not applicable

Activity 2 - Not applicable

Activity 3

a. To establish rapport with the student:

   1. explain that you are going to give him an informal test so that you can learn the types of materials he can read with success.

   2. emphasize student's strengths while correcting the student's weaknesses.

   3. ask him informal questions such as: "What do you do on Saturdays?" - "What TV programs do you like best?", etc.

b. Each student should experience success from the beginning. Therefore, have the student pronounce words from the word list two levels below the estimated performance level. Have student pronounce the words on each word list until he reaches the frustration reading level - the point at which five words in succession are missed.

c. Suggested marking system for recording oral reading errors:

1) Omissions - circle entire word or letter sound (rocky)

2) Insertions - insert with a caret very ^

3) Underline and write in all mispronunciations top tap

4) Draw a line through a substitution and write in ~~hundreds~~ thousands

5) Use a wavy line to indicate a repetition - share

6) Put a check mark above a hesitation of more than 5 seconds - danger

7) It may be beneficial to tape record the student's reading for later marking. Mark errors later to assure detecting all errors. (Marking the errors as the student reads may make him self-conscious.)

After each paragraph, ask questions prepared in Activity 2-c. Stop the oral reading when the student reaches his frustration reading level. (At this level, the student makes many oral reading errors, appears tense and insecure.)

d. The level at which the student can answer about 75 percent of the questions correctly when the teacher reads is called the potential or capacity level. This is the level at which the student should be able to learn to read with individually prescribed remedial or corrective reading instruction.

Activity 4

a. A copy of IRI given a third year student is on pages I-E2-7 through I-E2-17 in the module.

b. Suggested criteria or classification schemes used to determine reading levels are shown on page I-E2-4.

Emmett Betts

Independent Reading Level

99 percent accuracy in word recognition
95 percent or better comprehension

Instructional Reading Level

90 percent or better accuracy in word recognition
75 percent or better comprehension

Frustration Reading Level

90 percent or better accuracy in word recognition
50 percent or better accuracy in comprehension

Capacity or Potential Level

75 percent or better in accuracy on material that has been read to the student.

George Spache

Instructional or Performance Reading Level

75 percent accuracy in word recognition in the first grade with gradual increase to 94 percent in the eighth grade
60 percent accuracy in comprehension

Nila Banton Smith

Instructional or Performance Reading Level

80 percent to 95 percent accuracy in word recognition
80 percent to 90 percent accuracy in literal comprehension
70 percent to 75 percent accuracy in interpretive comprehension

Activity 5: Samples of oral reading checklists are on pages I-E2-7 through I-E2-17.

LEARNING ACTIVITIES

For learning activities 1, 2, 4, and 5, write your responses on a separate sheet of paper. For learning activity 3, mark your answers on the paper you used to respond to learning activity 2. Check your answers with your supervisor.

Learning Activity 1

a. Select basal readers from a range of grade levels as needed.

b. Form a vocabulary list of 25 words from the list of words at the end of each book by choosing every fifth, eighth, or tenth word.

c. Prepare the list for the student to use.

Learning Activity 2

a. Select basal readers from a range of grade levels as needed.

b. From the material near the middle of each reader, select a paragraph of approximately 100 words.

c. Prepare a list of questions which evaluate:

1) Student's understanding of the vocabulary.

2) Student's literal comprehension of each paragraph.

3) Student's ability to draw inferences or conclusions.

Learning Activity 3

Select another participant as a partner and role play the following steps:

a. Establish rapport with student.

b. Give the student a copy of the word list two levels below the estimated performance level and have him read each list until he misses 5 words in succession.

c. Have the student read orally a series of graded oral reading paragraphs beginning two levels below his estimated performance level and stop the oral reading when the student reaches his frustration reading level.

d. Read the remaining paragraphs to the student to establish the student's potential or capacity level. Ask the questions which were prepared for each paragraph in Activity 1, on page I-E2-4.

Learning Activity 4

a. Using the IRI found on pages I-E2-7 through I-E2-17 given a third-year student, determine:

1) The independent reading level.

2) Performance or instructional reading level.

3) Frustration reading level.

4) Capacity reading level.

b. Select a criteria or classification scheme from those presented on page I-E2-4 or make adaptations to determine reading levels of your students. Check your answers on page I-E2-18.

Learning Activity 5

a. Review the samples of oral checklists found on pages I-E2-19 and I-E2-20.

b. Select one of the sample checklists or make one that meets the needs of your students.

c. Use the checklist with another participant or with a recording.

SUPPORTIVE INFORMATION

PRE-PRIMER SIGHT WORDS

a _____
and _____
away _____
big _____
blue _____
can _____
come _____
down _____
find _____
for _____
funny _____
go _____
help _____

here _____
I _____
in _____
is _____
it _____
jump _____
little _____
look _____
make _____
me _____
my _____
not _____
one _____
play _____

red _____
ran _____
said _____
see _____
the _____
three _____
to _____
two _____
up _____
we _____
where _____
yellow _____
you _____

I-E2-8

PRIMER - SIGHT WORDS

all _____
am _____
are _____
at _____
ate _____
be _____
black _____
brown _____
but _____
came _____
did _____
do _____
eat _____
four _____
get _____
good _____
have _____
he _____
into _____
like _____
must _____
new _____
no _____
now _____
on _____
our _____
out _____
please _____
pretty _____
run _____
ride _____
saw _____
say _____
she _____
so _____
soon _____
that _____
there _____
they _____
this _____
too _____
under _____
want _____
was _____
well ✓
went ✓
what _____
white _____
who _____
will _____
with _____
yes _____

-2

FIRST LEVEL SIGHT WORDS

after _____
again _____
an _____
any _____
as _____
ask _____
by _____
could _____
every _____
fly _____
from _____
give _____
going _____

had _____
has _____
her _____
him _____
how _____
just _____
know _____
let _____
live _____
may _____
of _____
old _____
once ✓ _____
open _____

over _____
put _____
round _____
some _____
stop _____
take _____
thank _____
them _____
then _____
think _____
walk _____
were ✓ _____
when _____

-2

I-E2-10

SECOND LEVEL SIGHT WORDS

always _____
around _____
because _____
been _____
before _____
best _____
both _____
buy _____
call _____
cold _____
does _____
don't _____
fast _____
first _____
five _____
found _____
gave _____
goes _____
green _____
its _____
make _____
many _____
off _____
or _____
pull _____
read _____
right _____
sing _____
sit _____
sleep _____
tell _____
their _____
these _____
those _____
upon ✓
us _____
use _____
very ✓
wash ✓
which ✓
why ✓
wish ✓
work _____
would _____
write _____
your _____

-6

GRADED ORAL READING PARAGRAPH (PRIMER)

Name _____ Grade _____ Teacher _____ Date _____

THE YELLOW KITE

Jack got a new yellow kite for his birthday. The kite had a string on it. Jack could use the string of the kite to make it fly. Jack could make his kite go up high. Janet wanted to fly the (a) new kite. Janet liked to fly kites. Janet ran fast with the string. Janet could make the kite go up high. Then Jack made the kite go fast. Jack let the kite go up as high as it could. Then he let the kite get away.

Comprehension Questions:

1. When did Jack get the new yellow kite? yes
2. Who else flew the new kite? yes
3. What made the kite go up high? yes
4. Why did the kite get away? yes
5. Give me a sentence using the word birthday. yes

Number of words 87

Number of words correct 86

Accuracy:

90% 78

(99% 86)

Comprehension:

95% Five questions

(75% Four questions)

I-E2-12

GRADED ORAL READING PARAGRAPH (FIRST READER)

Name_____Grade____Teacher_____Date_____

THE CIRCUS COMES TO TOWN

A circus was coming to Mary's town. Pictures of the circus were all around the town. Mary wanted to go to the circus. She wanted to see the elephants. She wanted to see the man water the elephants. Mary wanted to see the circus dog too. She wanted to see the circus dog go up a strong rope. She wanted to see the man clean the animal cages with a broom. Mary wanted to see the bears at the circus too. They had on blue caps. Mary must have money to go to the circus. Do you think that she can go?

Comprehension Questions:

1. Where did Mary want to go?
2. What color caps did the bears have on?
3. Why were pictures of the circus all around Mary's town?
4. Why do you think Mary needs money to go to the circus?
5. Give me a sentence using the word elephant.

Number of words 101

Number of words correct 93

Accuracy:

90% 91

99% 100

Comprehension:

95% Five questions

75% Four questions

GRADED ORAL READING PARAGRAPH
SECOND READER - FIRST SEMESTER

Name_____ Grade____ Teacher_____ Date_____

OWLS ARE NIGHT-BIRDS

Do you think that you have ever (never) seen an owl? An owl may live in the (a) zoo. Have you ever seen an owl in a (the) zoo? Some people are afraid (afraid of) of owls because they look strange and make strange sounds. You do not have to be afraid of an owl because they are not so bad as they look and sound. Owls help farmers in their fields because they eat bugs. Owls are hard to find because they don't fly around in the daytime. They fly around at night and hide in the daytime. Owls look as if they know everything. An owl doesn't know more than other birds. It just looks as if it does.

Comprehension Questions:

1. Where could you see an owl? no
2. Why are some people afraid of owls? yes
3. Why should owls be protected? yes
4. Why do you think that owls fly at night instead of in the daytime? yes
5. Give me a sentence using the word strange. yes

Number of words 117

Number of words correct 107

Accuracy:

(90% 105)

99% 116

Comprehension:

95% Five questions

(75% Four questions)

I-E2-14

GRADED ORAL READING PARAGRAPH
SECOND READER - SECOND SEMESTER

Name_____Grade____Teacher_____Date_____

WHAT IS A CATBIRD?

Have you ever heard of a catbird? A catbird is a dark bird that can make a sound just like the meow of a cat. He doesn't always make the noise of a cat. He often makes music and gives the birdcalls of another bird. The catbird is gray with a black cap. However, sometimes you can see red under his tail. Often a catbird is curious about people. Sometimes a catbird follows a man along a road just as if he likes to find out where the man is going. A catbird sometimes is curious about noises also. Often if a catbird hears a strange noise, he goes out to find out what is happening. Farmers like to have catbirds in their fields and gardens because they eat bugs that might hurt the fields and gardens. Do you think that you have ever seen a catbird?

Comprehension Questions:

1. Why does a catbird have that name? yes
2. What color is a catbird? yes
3. Why do you think that catbirds should be protected? yes
4. How is a catbird different from other birds? yes
5. Give me a sentence using the word birdcall. yes

Number of words 147

Number of words correct 107

Accuracy:

90% 130

99% 143

Comprehension:

95% Five Questions

75% Four Questions

GRADED ORAL READING PARAGRAPH

THIRD READER - FIRST SEMESTER

Name_____Grade_____Teacher_____Date_____

LIGHTHOUSES

Do you know what a lighthouse is? Long ago men began to build lighthouses to show places of great danger along the shores of oceans and lakes. Today there are hundreds of lighthouses along rocky shores and on rocky islands in all parts of the world. Most lighthouses are tall, round buildings that are wider at the bottom than at the top. Most of them are painted white so that they can be seen easily in daytime by ships. Most lighthouses have the powerful light at the top. The beam from their light shines out through a special kind of window so that it turns around and around the light. As the window turns in a lighthouse, the light appears to flash on and off. The man who lives in the lighthouse and watches the light is called the lightkeeper. When fog covers the shore of an ocean or lake, the lightkeeper uses a foghorn to warn ships of danger. By their warnings of danger, lightkeepers have saved the lives of hundreds of people.

Comprehension Questions:

1. Where are lighthouses found today? yes
2. Why are most lighthouses painted white? no
3. What makes the light in a lighthouse appear to go on and off? no
4. Why is the man who takes care of the light called the lightkeeper? yes
5. Give me a sentence using the word foghorn. yes

Number of words 173

Number of words correct 146

Accuracy:

90% 158

99% 171

Comprehension:

95% Five questions 50-60%

75% Four questions

I-E2-16

GRADED ORAL READING PARAGRAPH
THIRD READER - SECOND SEMESTER

Name_____Grade____Teacher_____Date_____

WHAT ARE DUMB ANIMALS?

Do you think most animals are dumb? Animals are often called dumb because they do not speak or write a language such as people do. However, many animals are smart. Animal trainers can tell you that they know how smart many animals are. Many people who have lost their sight have a seeing-eye dog which has been trained to take them wherever they want to go. Animals do understand our language very well even if they have no spoken language of their own. Many animals seem to understand everything that you say to them. An animal trainer has learned that the best way to train any animal is through kindness. When an animal does something well, he can be rewarded with something which will please him. You will find that he then is eager to do the same thing again. If an animal which you are training misbehaves, taking something away which he wants usually will teach him to behave himself.

Comprehension Questions:

1. Why are animals called dumb? yes
2. What does a seeing-eye dog do? yes
3. How can an animal show you that he understands your language? yes
4. Why is kindness more effective than punishment in training an animal? no
5. Give me a sentence using the word misbehaves. yes

Number of words 162

Number of words correct _____

Accuracy:

90% 146

99% 160

Comprehension:

95% Five questions

75% Four questions

GRADED ORAL READING PARAGRAPH

FOURTH READER

Name_____Grade____Teacher_____Date_____

RACCOONS

Have you ever seen a raccoon in the forest? You will find that a raccoon is nearly as much fun to look at as a monkey and also is almost as curious about everything around him. Although a raccoon can be a household pet, he is not really a good house-pet because he is so curious that he is always busy making trouble. A raccoon can use his front paws so cleverly that he can open cardboard boxes, unwrap bundles, and take the covers off jars. The name "raccoon" comes from an American Indian word which means "one who scratches with his hands." Raccoons have front paws which look like hands, and they use these paws to scratch on the ground, looking for insects that they want to eat. Raccoons eat many different foods. They are quite fond of fish and are clever at catching them with their hand-like paws. In some countries, raccoons are called "washing bears." They are called this because they usually wash their food before eating it and because they like to take baths. Sometimes a raccoon even will put a fish in the water to wash it just after he has caught it.

Comprehension Questions:

1. Why is a raccoon not a good housepet? yes
2. What does a raccoon like to eat? yes
3. Why would a raccoon wash a fish which he has just caught? no
4. How do you know that raccoons lived in Indian times? no
5. Give me a sentence using the word curious. no

Number of words 198

Number of words correct _____

Accuracy:

90% 178
99% 196

Comprehension:

95% Five Questions

75% Four Questions

below 50%

Answers to Learning Activities

Activity 1. Check your answers with your supervisor

Activity 2. Check your answers with your supervisor

Activity 3. Check your answers with your supervisor

Activity 5. Check your answers with your supervisor

Activity 4.

a. From Bett's Criteria

1) Informal reading level -- The Yellow Kite

2) Instructional reading level -- What is a Catbird?

3) Frustration reading level -- Lighthouses

4) Capacity level -- What are Dumb Animals?

b. Check your answers with your supervisor

SAMPLE ELEMENTARY-LEVEL CHECKLIST FOR ORAL READING . . .

NAME _____ GRADE _____ TEACHER _____

1. Enjoys reading orally in an audience situation _____
2. Is able to read orally in phrases or though units _____
3. Has good expression while reading orally _____
4. Observes punctuation marks in oral reading _____
5. Usually does not add words while reading orally _____
6. Usually does not omit words while reading orally _____
7. Usually does not repeat words or phrases while reading orally _____
8. Usually does not point to individual words while reading orally _____
9. Usually does not move the head while reading orally _____

SECONDARY-LEVEL CHECKLIST FOR ORAL READING . . .

NAME _____ GRADE _____ TEACHER _____

1. Enjoys reading orally in audience situation _____
2. Is able to read orally in phrases or thought units _____
3. Has good expression while reading orally _____
4. Observes punctuation marks in oral reading _____

SAMPLE CHECKLIST FOR ORAL READING

First Grade

1. Uses correct pronunciation ____
2. Uses correct phrasing (not word by word) ____
3. Uses proper voice intonation to give meaning ____
4. Has good posture and handles book appropriately ____
5. Understands simple punctuations:
   - period (.) ____
   - comma (,) ____
   - question mark (?) ____
   - exclamation mark (!) ____

Second Grade

1. Reads clearly and distinctly ____
2. Reads with expression ____
3. Reads fluently ____
4. Reads so that listeners enjoy the story ____

Third Grade

1. Reads with a pleasing voice quality ____
2. Reads with adequate volume ____
3. Reads with clear and distinct enunciation ____
4. Demonstrates accuracy in pronunciation ____
5. Demonstrates ability to convey meaning to listeners ____

Fourth Grade

1. Review previously taught skills ____
2. Eye-voice span of three words ____

Fifth Grade

1. Recognizes and pronounces with speed and accuracy ____
2. Interprets marks of puntuation accurately ____

Fifth Grade (Continued)

3. Re-expresses to an audience the meaning and feelings expressed by an author ____
4. Expresses emotion sincerely ____
5. Reads in a pleasant, well-modulated voice ____
6. Reads with poise and self-confidence ____
7. Dramatizes portions of the story ____
8. "Televises" or gives radio version of story events ____
9. Takes part in a stage version of a story ____
10. Verifies answers to questions ____
11. Interprets characterizations ____
12. Interprets word pictures ____
13. Interprets general mood of text, e.g. humor-suspense ____
14. Interprets sensations given by words ____
15. Interprets the organization of test:
    a. Main thought in paragraph ____
    b. Main events in sequence ____
    c. Main heads and subheads in outline ____
    d. Directions for carrying out an activity ____

Sixth Grade

1. Choral reading and poetry:
   a. Pronunciation ____
   b. Phrasing ____
   c. Rhymes
   d. Interpretations ____
2. Listening appreciation ____

SELF ASSESSMENT

Respond to the following questions on a separate sheet of paper.

1. I understand how to construct an informal reading inventory.

2. I can administer an informal reading inventory.

3. I can evaluate an informal reading inventory by the four reading levels using:

   a. My own criteria

   b. Emmett Betts' criteria

   c. Nila Banton Smith's criteria

4. I have my own oral reading checklist.

5. I made an oral reading checklist from the sample oral reading checklists.

If you answered all of the above questions in the affirmative, proceed to the next module. If you answered "no" to one or more of the questions, ask your supervisor to provide you with additional help.

PACKET I

DIAGNOSIS: COLLECTING AND RECORDING DATA

MODULE F-1

MATH NORM-REFERENCED TESTS

INTRODUCTION

The California Achievement Test (CAT) is a norm-referenced test. In Module B of Packet I, the CAT was discussed, and grade levels in broad areas of math were charted. In the following activities, a further breakdown of this test is possible through an item analysis format. By using this format, the CAT can be used as a diagnostic instrument. It must be remembered, however, that an achievement test is an achievement test first--and designed as such; therefore, it will not give as thorough information for skills analysis as will a true diagnostic test.

Objectives

After completing the learning activities in this module, the participant will:

1. Be able to locate the math data on the CAT Student Item Analysis printout.
2. Be able to interpret these data with references to the Item Analysis Sheet.
3. Be able to record these data from the printout to the Individual and Group Profile Sheet.
4. Be able to use the profile sheet in diagnosing a child's strengths and weaknesses in each of the skills.
5. Be able to list the norm-referenced tests available in his/her own school system to test a child in math.

Directions

Complete as many of the learning activities as you feel are necessary for you to know how to identify, record and interpret data on the CAT Student Item Analysis printout. Score yourself on the self-assessment sheet at the end of the module.

Supportive Information

1. Attached are copies of the:
   a. CAT Student Analysis printout (Page I-F1-4).
   b. CAT 70 - Level III Form A, Item Analysis for Mathematics on pages I-F1-5 through I-F1-8.
   c. CAT Individual and Group Profile - Mathematics on pages I-F1-9 through I-F1-13.
2. Study the CAT student item analysis printout and note the following suggestions before proceeding to the learning activities:
   a. Math scores are shown in the three rows under Computation (whole numbers).
   b. A plus symbol indicates a correct response; a minus symbol indicates an incorrect response; and the absence of either symbol indicates no response.
   c. There are four sections of the test enumerated separately:
      1) COMPUTATION
      2) FRACTIONS
      3) CONCEPTS
      4) PROBLEMS
   d. Test items may appear under more than one heading. For instance, item #1 under COMPUTATION - WHOLE NUMBERS - appears under ADDITION as well as under TWO-DIGITS.

Also, item #17 - COMPUTATION - WHOLE NUMBERS - appears under each of the following headings: ADDITION - 3 DIGITS - 3 ADDENDS - OPERATIONS WITH ZERO - SENTENCES AND EXPRESSION - and under DECIMALS, ADDITION - MONEY.

3. Study the Item Analysis for Mathematics and note:

   The Item Analysis sheets show you a breakdown of the item numbers on the Student Item Analysis printout, and the number of items which should be answered correctly in order to meet national norms at grade levels (4.7((5.7) (6.7).

4. Study the individual and group profile sheets and note:

   This is a form for a teacher to use in recording class scores. This profile should point out areas of weaknesses in the class as a whole, as well as individual student weaknesses, and permit the teacher to group children for instruction.

CAT STUDENT ITEM ANALYSIS PRINTOUTS SIMILAR TO THE ATTACHED ARE AVAILABLE IN YOUR SYSTEM OR ARE AVAILABLE THROUGH THE TITLE I OFFICE IN THE ALABAMA STATE DEPARTMENT OF EDUCATION.

CTB

INDIVIDUAL TEST RECORD

Published by CTB/McGraw-Hill, Del Monte Research Park, Monterey, California 93940

LEVEL 3 FORM A

CALIFORNIA ACHIEVEMENT TESTS

NAME ▶ Press, Dianne
SCHOOL ▶
CITY ▶
TEACHER ▶
GRADE ▶ 4.0
DATE OF TESTING ▶ 9/77
BATCH ▶ 2773
GROUP ▶ 305
RUN DATE ▶ 10/18

ERROR CODES 3	RAW SCORE	GE			NATL PCT	NATIONAL PERCENTILES
READING Vocabulary	10	2.4			16	XXXXX
READING Comprehension	6	1.4			3	XXXXXX
TOTAL READING	16	1.7			5	XXXX
MATHEMATICS Computation	18	3.0			15	XXXXX
MATHEMATICS Concepts & Problems	6	1.7			4	XXXXX
TOTAL MATHEMATICS	24	2.4			6	XXXX
LANGUAGE Mechanics						
LANGUAGE Usage & Structure						
TOTAL LANGUAGE						
SPELLING						
TOTAL BATTERY						

Vocabulary

Comprehension

ref skills | soc studies | science | general | math | facts | interpretation | relation | generalization | inference

Computation (whole numbers)

addition | subtraction | multiplication | division | regrouping | 2 - digit | 3 - digit | 4 - digit

Computation (whole numbers)

sent & express | operations with zero | mean | 3 & 4 addend

Computation (fractions)

add | subt | mult | div | horizontal | converting to: mixed, improper, whole no. | denominators: same, different, common | 2 - digit

Compu (fractions)

reduce | mixed

Concepts

money dec | no word | place value | number order | symbols | language | sent & express | Rom num | sets | mean | frac | geom

Problems

add | subt | mult | div | 2 step | graph | ratio | meas | avg

Mechanics Capitalization

beginning words: sentence, quote | proper noun | titles | pron I | no error

Mechanics

Punct I: series | commas: inter-det, yes, date-ad, cities | periods: sentence, abbrev | ? | ! | apostrophe: poss, contr | quotes | no error

Punct II (Position) (Choices)

Usage and Structure

standard English: case, tense, no, usage | sent struc: compl, incomp | sentence parts & func: verb, mod-f, phrase | transform

Spelling

letter rev | suffix | 2 word | vowel + y | mis pron | silent letter | multi and compon | dbl con | internal vowel | no error

CAT-A3ITR 81311

C.A.T. '70
LEVEL 3 - FORM A

ITEM ANALYSIS

MATHEMATICS

COMPUTATION - WHOLE NUMBERS

OPERATIONAL SKILL		NUMBER OF ITEMS NEEDED TO MEET NATIONAL NORMS AT GRADE LEVELS		
ADDITION:	Item Numbers	4.7	5.7	6.7
Without Re-Grouping	1, 4, 17, 18	3	4	4
With Re-Grouping	2, 3, 9, 10, 11, 12, 19 20	6	6	7
Two-Digit	1, 2, 9, 10	3	4	4
Three-Digit	4, 11 17, 17, 19, 20	4	4	5
Three Addends	3, 12, 17, 19, 20	3	3	4
Operation With Zero	4, 12, 17, 20	2	3	3
Sentences & Expressions	17, 20	1	1	1
Measurement	18	1	1	1
SUBTRACTION:				
Without Re-Grouping	5, 6, 7, 8, 24	4	4	5
With Re-Grouping	13, 14, 15, 16, 21, 22, 23	5	5	6
Two-Digit	5, 6, 13, 15	3	3	4
Three-Digit	7, 8, 14, 16, 21, 22, 23	5	5	6
Operation With Zero	7, 8, 16, 22, 23	3	4	4
Sentences & Expressions	16	1	1	1
Measurement	24	1	1	1
MULTIPLICATION:				
Without Re-Grouping	25, 26, 27, 34, 36	4	4	4
With Re-Grouping	28, 33, 35, 42, 43, 44	3	4	4
Two-Digit	34, 42, 43	1	2	2
Three-Digit	44	0	0	1
Operation With Zero	26, 41, 42, 44	2	2	3
Measurement	36	1	1	1

DIVISION:	Item Numbers	GRADE LEVELS 4.7	5.7	6.7
Without Re-Grouping	29, 30, 31, 32, 37, 39, 46, 48	4	5	6
With Re-Grouping	38, 40, 45, 47	1	2	3
Two-Digit	40, 45	0	1	1
Three-Digit	46	0	0	1
Operation With Zero	31, 37, 39, 40, 45, 46	2	3	4
Measurement	38	0	1	1
DECIMALS:				
Addition	17, 19, 20	1	2	2
Subtraction	16, 23	1	1	1
Multiplication	35	1	1	1
Division	37	0	1	1
Money	16, 17, 19, 20, 23, 35, 37	3	4	5

FRACTIONS

OPERATIONAL SKILL ADDITION:	Item Numbers	GRADE LEVELS 4.7	5.7	6.7
Horizontal	2	1	1	1
Converting to Mixed Numbers	5	0	0	0
Denominator Same	2	1	1	1
Denominator Different	3, 4, 5	0	1	2
Finding Common Denominator	3, 4, 5	0	1	2
Two-Digit	1	1	1	1
Mixed	1, 4, 5	1	1	2

		GRADE LEVELS		
SUBTRACTION:	Item Numbers	4.7	5.7	6.7
Horizontal	7, 8, 9	1	2	2
Converting to Improper	10	0	0	1
Denominator Same	7, 8, 10	1	2	2
Denominator Different	9	0	0	1
Finding Common Denominator	9	0	0	1
Two-Digit	10	0	0	1
Mixed	6, 10	0	1	1
MULTIPLICATION:				
Horizontal	11, 12, 13, 14, 15	1	1	2
Reducing	13, 14	0	0	1
Converting to Improper	15	0	0	1
Converting to Whole	15	0	0	1
Denominator Same	12	0	0	1
Denominator Different	13, 14	0	0	1
Mixed	15	0	0	1
DIVISION:				
Horizontal	16, 17, 18, 19, 20	1	1	2
Reducing	16, 18, 20	1	1	1
Converting to Mixed	18, 20	0	0	1
Converting to Improper	20	0	0	1
Denominator Same	16	0	1	1
Denominator Different	18, 20	0	0	1
Mixed	20	0	0	1

CONCEPTS

	Item Number	NATIONAL AVERAGE GRADE LEVELS 4.7	5.7	6.7
Geometry	4, 11, 18, 20, 25	2	3	3
Measurement	3, 13, 19, 22, 25	2	3	3
Fractions	4	1	1	1
Sets	2, 17	1	2	2
Symbols	1, 3, 6, 10, 15, 17, 23	5	5	6
Language	1, 9, 11, 13, 15, 18, 20, 25,	4	5	6
Money, Decimals, Place Value	5, 7, 12, 16, 21, 23, 24	3	4	5
Number Words	7, 12, 16, 24	2	3	3
Number Order	8, 19, 21	1	2	2
Roman Numerals	14	1	1	1
Sentences & Expressions	2, 6, 11, 17, 22	3	3	4

WORD PROBLEMS

	Item Numbers	GRADE LEVELS 4.7	5.7	6.7
Addition	1, 4, 8	2	2	3
Subtraction	2, 4, 8, 11	2	3	3
Multiplication	3, 10, 12, 13, 14	2	3	3
Division	5, 6, 9, 15	2	2	3
Fractions	13	0	0	1
Two-Step	4, 8, 9, 10, 11, 15	3	3	4
Graphs	7	1	1	1
Ratio	12, 13	1	1	1
Measurement	14, 15	0	1	1
Average & Sharing	6, 15	1	1	1

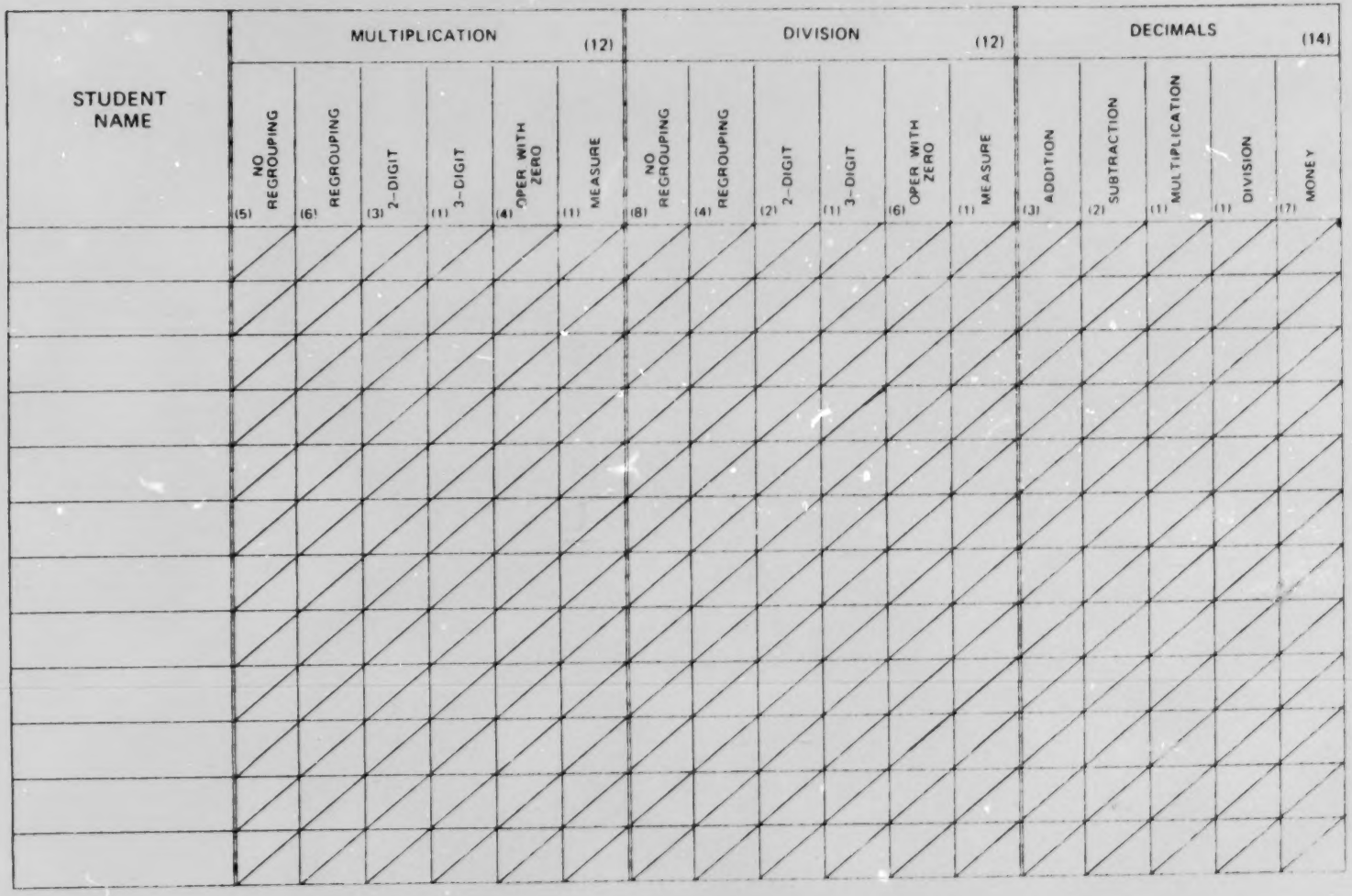
C.A.T. ANALYSIS
LEVEL 2 – FORM A
406120 0642 1M 205 9 74AL

MATHEMATICS
COMPUTATION – WHOLE NUMBERS

OBTAINED GRADE PLACEMENT	STUDENT NAME	ABOVE OR BELOW G P	ADDITION (12)								SUBTRACTION (12)						
			(4) NO REGROUPING	(8) REGROUPING	(4) 2-DIGIT	(6) 3-DIGIT	(5) 3-ADDENDS	(4) OPER WITH ZERO	(2) SENT and EXPRESSION	(1) MEASURE	(5) NO REGROUPING	(7) REGROUPING	(4) 2-DIGIT	(7) 3-DIGIT	(5) OPER WITH ZERO	(1) SENT and EXPRESSION	(1) MEASURE

C.A.T. ANALYSIS
LEVEL 3 - FORM A

COMPUTATION - WHOLE NUMBERS



I-F1-10

C.A.T. ANALYSIS
LEVEL 3 – FORM A

FRACTIONS – OPERATIONAL SKILLS

STUDENT NAME	ADDITION							SUBTRACTION						
	(1) HORIZONTAL	(1) CONV. TO MIXED	(1) DENOM SAME	(3) DENOM DIFF	(3) FIND COMMON	(1) 2-DIGIT	(3) MIXED	(3) HORIZONTAL	(1) CONV. TO IMPR	(3) DENOM SAME	(1) DENOM DIFF	(1) FIND COMMON	(1) 2-DIGIT	(2) MIXED

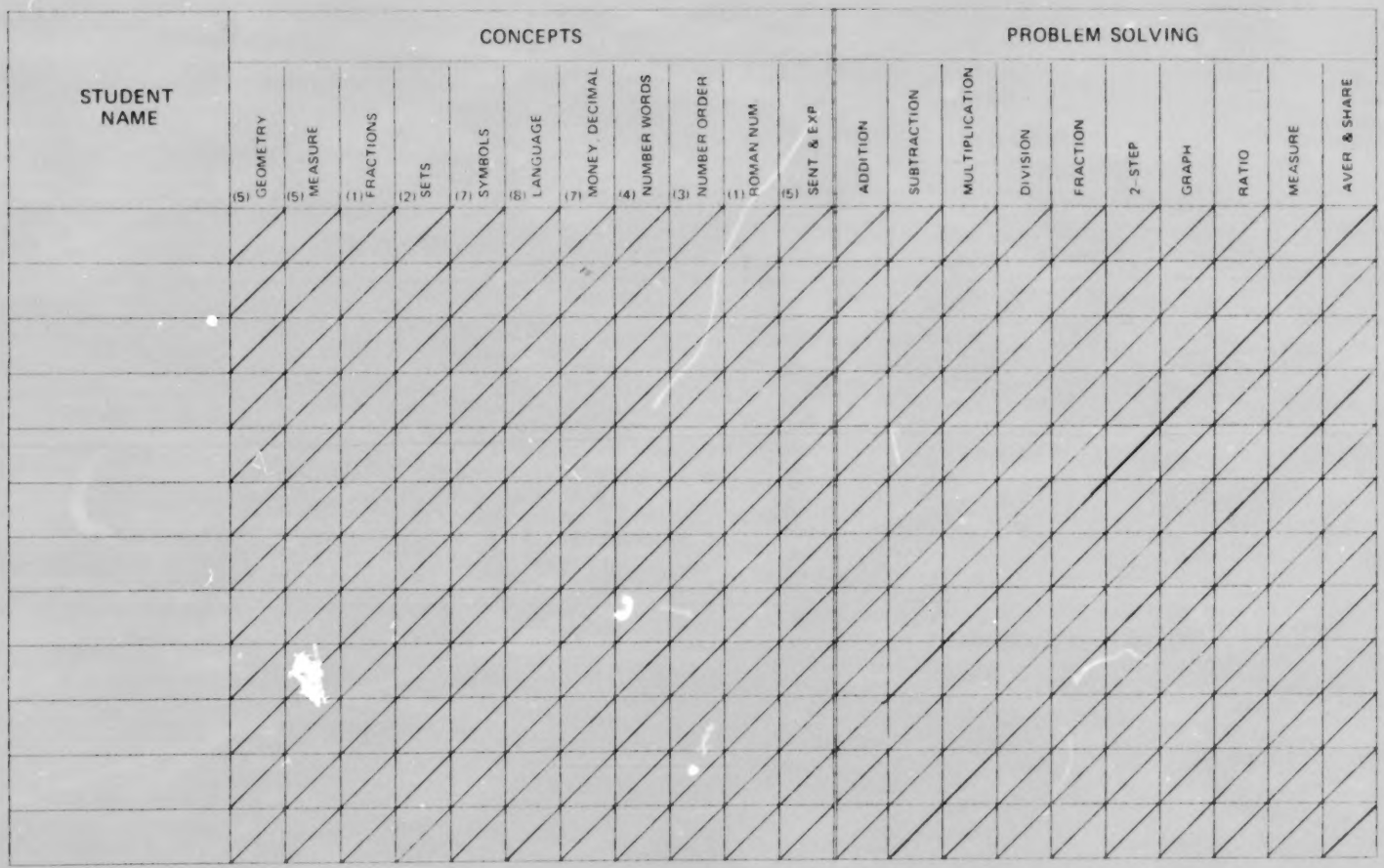
C.A.T. ANALYSIS
LEVEL 3 FORM A

FRACTIONS – OPERATIONAL SKILLS

STUDENT NAME	MULTIPLICATION						DIVISION						
	(5) HORIZONTAL	(2) REDUCING	(1) CONV TO IMPR	(1) CONV TO WHOLE	(2) DENOM DIFF	(1) MIXED	(5) HORIZONTAL	(3) REDUCING	(2) CONV TO MIXED	(1) CONV TO IMPR	(1) DENOM SAME	(2) DENOM DIFF	(1) MIXED

I-F1-13

C.A.T. ANALYSIS
LEVEL 1 FORM A



LEARNING ACTIVITIES

Write on a separate sheet of paper the answers to the following questions:

Learning Activity 1

Using the attached CAT Student Item Analysis printout on page I-F1-4, study the hypothetical information given and then write the answers to the following questions on a separate sheet of paper.

a. In which row does the computer printout show the beginning of the mathematics section of answers?

b. How many questions are there dealing with division of whole numbers?

c. How many correct answers did Diane Press get in addition of whole numbers?

d. Each test item in computation of whole numbers (addition, subtraction, multiplication and division) is also shown in one or more other breakdowns in Column 2. For example, item #1 is also shown under 2-DIGITS.

In what other areas besides SUBTRACTION do you find item #16?

e. The breakdown by skills is quite comprehensive in the mathematics section of the CAT. It would be very easy to spot Diane's weakness in OPERATIONS WITH ZERO by a quick look at her errors in that section. How many questions did she miss?

f. Just as the CAT test is divided into four sections: COMPUTATION, CONCEPTS, FRACTIONS, AND PROBLEMS, so is the printout, though not in that order. Note that FRACTIONS are listed as COMPUTATION-

(fractions), first in the breakdown by addition-subtraction-multiplication and division, then in the subskills of HORIZONTAL through MIXED.

To be sure that you understand this sequence, list the test item numbers under denominator-common. Now, how many of these are addition of fractions? List these numbers.

g. How many items under math CONCEPTS are related to NUMBER ORDER? How many did Diane answer correctly.

h. There are six PROBLEMS which require two steps. How many did Diane miss?

i. What test item numbers under PROBLEMS are related to graphs?

Check your answers with those given on page I-F1-18.

Learning Activity 2

Refer to the "Item Analysis" sheets for mathematics on pages I-F1-5 through I-F1-8. Study the coordination of numerals listed in the column "Item Number" with the test items shown on the computer printout. Write the answers to the following questions on a separate sheet of paper.

a. How many whole number computations are listed for OPERATION WITH ZERO using addition? Using subtraction?

b. Under FRACTIONS, what item numbers are listed under "reducing" in multiplication examples?

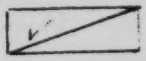
c. Give the item number which refers to Roman Numerals under CONCEPT. Was Diane's answer correct? -- Incorrect? or did she fail to answer?

d. How many addition items are listed under WORD PROBLEMS?

e. How many LANGUAGE items under CONCEPTS must a fourth grade child answer correctly at the end of the school year in order to meet the national norms?

Check your answer with those given on page I-F1-18.

Learning Activity 3

Using the information given on the computer printout and the analysis sheet, fill in the COMPUTATION-WHOLE NUMBERS on CAT Math Analysis form supplied by your supervisor. Pre-test figures should be entered here  . The lower half of the space is reserved for post test scores. For comparison purposes, transfer the number of items needed to meet national norms from the Item Analysis for mathematics (4.7) to the corresponding section of the Individual and Group Profile - Mathematics, pages I-F1-9 through I-F1-13. Write the figures with a red pen above the black ones in parentheses. The figures in parentheses represent the total number of items in each category.

For example: On the first page of the Item Analysis Sheet (CAT 70 Level 3, Form A), the number of items needed to meet national norms at grade 4.7 for ADDITION - Without Regrouping is 3. On page 9, the total number of items shown on the Individual and Group Profile for ADDITION - No Regrouping is 4. Record a red 3 above the (4).

This will give you a clear picture of how well Diane's scores compare with what is expected.

In analyzing a student's score, always take into consideration whether the student consistently made no responses. It should be recorded whether failure to respond was due to a lack of time, or whether the student simply did not understand the concepts.

Check your answers to this activity on page I-F1-19.

Learning Activity 4

Using the completed student profile form from Learning Activity 3, determine the strengths and weaknesses indicated by this students' test scores from the COMPUTATION-WHOLE NUMBERS section.

Check the answers to this activity on page I-F1-20.

Learning Activity 1

a. 3rd

b. 12

c. 6

d. Re-grouping

3-Digits

Operation with zero

Sentence and expressions

Subtraction of decimals

Money

e. 14

f. 3-4-5-9

Three

3-4-5

g. Three

None

h. Five

i. #7

Learning Activity 2

a. Four

Five

b. 13-14

c. #14

Incorrect

d. Three

e. Four

Answers to Learning Activity 3

C.A.T. ANALYSIS
LEVEL 3 - FORM A
406120-0642-1M-205-9-74AL

MATHEMATICS

COMPUTATION - WHOLE NUMBERS

OBTAINED GRADE PLACEMENT	STUDENT NAME	ABOVE OR BELOW G.P.	ADDITION (12)							
			3 NO REGROUPING (4)	6 REGROUPING (8)	3 2-DIGIT (4)	4 3-DIGIT (6)	3 3-ADDENDS (5)	2 OPER. WITH ZERO (4)	1 SENT. and EXPRESSION (2)	1 MEASURE (1)
2.4	Diane Press	-1.6	4	2	2	3	2	2	1	1

SUBTRACTION (12)								MULTIPLICATION (12)					
4 NO REGROUPING (5)	5 REGROUPING (7)	3 2-DIGIT (4)	5 3-DIGIT (7)	3 OPER. WITH ZERO (5)	1 SENT. and EXPRESSION (1)	1 MEASURE (1)		4 NO REGROUPING (5)	3 REGROUPING (6)	1 2-DIGIT (3)	0 3-DIGIT (1)	2 OPER. WITH ZERO (4)	1 MEASURE (1)
4	1	2	3	2	0	0		1	0	0	0	0	0

DIVISION (12)							DECIMALS (14)				
4 NO REGROUPING (8)	1 REGROUPING (4)	0 2-DIGIT (2)	0 3-DIGIT (1)	2 OPER. WITH ZERO (6)	0 MEASURE (1)		1 ADDITION (3)	1 SUBTRACTION (2)	1 MULTI-PLICATION (1)	0 DIVISION (1)	3 MONEY (7)
2	1	0	0	0	1		2	0	0	0	2

ANSWER SHEET

Learning Activity 4

On the Individual Test Record of the CAT student printout, the OGE for Diane was at the 3.0 level in Mathematics-Computation but was at the 1.7 level in Concepts and Problem Solving. This gave Diane a total OGE of 2.4 for Mathematics.

In reviewing your students' profile, it is best to look at the total profile, however, for this activity only the whole number section was used. Diane's test reflected strength in ADDITION with no re-grouping, operation with zero, sentences and expressions, and measurement. Her weakness here was in re-grouping of whole numbers. In SUBTRACTION her strengths were in operations requiring no re-grouping, two-digit and operations with zero. Her weaknesses were in operations requiring re-grouping of numbers, three-digits, sentences and expressions, and measurement.

In MULTIPLICATION the test indicated Diane had no strengths and all skill areas needed support. In DIVISION the test reflected much the same as in multiplication.

In DECIMAL operations, the test reflected Diane had strength only in the addition and money sections.

In analyzing Diane's test, it was noted she attempted every problem other than item seven in the FRACTION section. To determine more clearly where her strengths and weaknesses were, further diagnostic work should be undertaken. In Module F-2 criterion-referenced testing is discussed. This should give the teacher

Learning Activity 4 (Cont'd.)

assistance in preparing test items for diagnosis through criterion-referenced tests. This should aid in determining if the strengths or weaknesses were real or if this student guessed well on the norm-referenced test.

I-F1-22

SELF-ASSESSMENT

Write the answers to the following questions on a separate sheet of paper.

1. Can you locate the mathematics data on the CAT Student Item Analysis printout?
2. Can you interpret these data in reference to the Item Analysis Sheet?
3. Can you record these data from the printout to the Individual and Group Profile sheet?
4. Using the profile sheet, can you diagnose a child's strengths and weaknesses in each of the skills?

If you answered all of the above questions in the affirmative, proceed to the next module.

If you did not answer "yes" to each question, ask your supervisor to provide you with additional help.

PACKET I

DIAGNSOIS: COLLECTING AND RECORDING DATA

MODULE F-2

MATH CRITERION REFERENCED TESTS

INTRODUCTION

Unlike achievement tests, which are norm-based instruments that give grade levels, diagnostic tests give information about a student's strengths and weaknesses in specific skill areas. The criterion-referenced test is one form of a diagnostic test.

There are many criterion-referenced tests produced commercially, however, teachers may construct their own tests with some training. In many instances these criterion-referenced tests may be more appropriate to the Title I teacher than are the commercial type of tests.

In developing their own tests, teachers should be familiar with the skills continuum in the school and the school system. These skill areas are identified in the scope and sequence of the subject area.

In this module, the criterion-referenced items will be derived from the identified skill areas of the Mathematics Section of the California Achievement Test, Level 3, Form A, by using the Item Analysis Form developed by the Title I staff in the Alabama State Department of Education. It should be noted that only the skills are being identified, and this is not an attempt to teach to a norm-referenced test.

Objectives

After completing the learning activities in this module, the participant will:

1. Be able to identify the mathematics skill areas.

2. Be able to identify sub-skill areas of an operational skill.

3. Be able to construct test items to match identified skill areas.

4. Be able to construct a criterion-referenced test.

Directions

Complete as many learning activities as you feel are necessary for you to identify mathematics skill areas and to construct criterion-referenced test items. Score yourself on the self-assessment sheet at the end of the module.

Supportive Information

Attached is a copy of Item Analysis, California Achievement Test, Level 3, Form A. Study this form, noting the four sections of the test which include Computation - Whole Numbers, Fractions, Concepts, and Word Problems. The Computation-Whole Numbers section contains 48 items; the Fractions section contains 20 items; the Concepts section contains 25 items; and the Word Problems section contains 15 items. The numbering of items in each section begins with number one, therefore, each section must be considered separately when viewing specific test item numbers.

Terms Used in the Module

Digit: A term applied to any of the integers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

Two-Digit: Two integers used together to form a number. For example, 23 has the digits 2 and 3.

Addend: One of a set of numbers to be added, as 2 or 3 in the sum of 2 + 3.

Re-Grouping: To form into a new grouping of numbers in order to add or subtract numbers, such as in subtracting 29 from 131. One hundred, two tens and eleven ones--two tens and 9 ones may now be subtracted.

Sentences: Numbers put in a horizontal format such as 3+12+16=31.

Suggestions for Use in the Learning Activities

Learning Activity 1

Refer to Item Analysis - Mathematics on Pages I-F2-5 through I-F2-8. Note the four major areas included in the California Achievement Test.

Learning Activity 2

Refer to Item Analysis - Mathematics on Pages I-F2-5 through I-F2-8. Note the Operational Skills under each major testing area. For example, in Computation - Whole Numbers, there are skill areas in addition, subtraction, multiplication, division and decimals.

Learning Activity 3

Refer to Item Analysis - Mathematics on Pages I-F2-5 through I-F2-8. Note that under Operational Skills - Addition, there are sub-skill areas indicated as addition--Without regrouping, with regrouping, two digits, three digits, etc.

Learning Activity 4

Refer to Item Analysis - Mathematics on Page I-F2-5. Under Operational Skills - Addition, the sub-skill areas, such as addition without regrouping, have items number 1, 4, 17, and 18 listed under the column headed Item Numbers. Likewise in addition with regrouping,

the test item numbers are 2, 3, 9, 10, 11, 12, 19, and 20. In reviewing each of the sub-skills under addition, you will note that some of the item numbers will repeat themselves. For example, item number one (1) is an item which is two digits and requires no regrouping. (Example: 11+7.) Item number four (4) contains three digit digits, operation with zero and does not require regrouping. (Example: 210+523.)

Learning Activity 5

Refer to Item Analysis - Mathematics on Pages I-F2-5 through I-F2-8. To develop criterion-referenced test items, it will be necessary to include examples of each sub-skill to determine areas of student strength and weakness.

The same criterion-referenced test may be used for both the pretest and post-test. However, in developing any test, much consideration should be given to the items on the test. In many instances, the test items may have to be adjusted on the criterion test to make sure you are testing those skills which you intend to teach the student. The length of a test is no indication of its comprehensiveness.

On a separate sheet of paper, write the answers to the learning activities on Pages I-F2-9 and I-F2-10.

C.A.T. '70
LEVEL 3 - FORM A

ITEM ANALYSIS

MATHEMATICS

COMPUTATION - WHOLE NUMBERS

OPERATIONAL SKILL	Item Numbers	NUMBER OF ITEMS NEEDED TO MEET NATIONAL NORMS AT GRADE LEVELS		
		4.7	5.7	6.7
ADDITION:				
Without re-grouping	1, 4, 17, 18	3	4	4
With re-grouping	2, 3, 9, 10, 11, 12, 19, 20	6	6	7
Two-digit	1, 2, 9, 10	3	4	4
Three-digit	4, 11, 12, 17, 19, 20	4	4	5
Three addends	3, 12, 17, 19, 20	3	3	4
Operation with zero	4, 12, 17, 20	2	3	3
Sentences & expressions	17, 20	1	1	1
Measurement	18	1	1	1
SUBTRACTION:				
Without re-grouping	5, 6, 7,8, 24	4	4	5
With re-grouping	13, 14, 15, 16, 21, 22, 23	5	5	6
Two-digit	5, 6, 13, 15	3	3	4
Three-digit	7, 8, 14, 16, 21, 22, 23	5	5	6
Operation with zero	7, 8, 16, 22, 23	3	4	4
Sentences & expressions	16	1	1	1
Measurement	24	1	1	1
MULTIPLICATION:				
Without re-grouping	25, 26, 27, 34, 36	4	4	4
With re-grouping	28, 33, 35, 42, 43, 44	3	4	4
Two-digit	34, 42, 43	1	2	2
Three-digit	44	0	0	1
Operation with zero	26, 41, 42, 44	2	2	3
Measurement	36	1	1	1

DIVISION:	Item Numbers	GRADE LEVELS 4.7	5.7	6.7
Without re-grouping	29, 30, 31, 32, 37, 39, 46, 48	4	5	6
With re-grouping	38, 40, 45, 47	1	2	3
Two-digit	40, 45	0	1	1
Three-digit	46	0	0	1
Operation with zero	31, 37, 39, 40, 45, 46	2	3	4
Measurement	38	0	1	1
DECIMALS:				
Addition	17, 19, 20	1	2	2
Subtraction	16, 23	1	1	1
Multiplication	35	1	1	1
Division	37	0	1	1
Money	16, 17, 19, 20, 23, 35, 37	3	4	5

FRACTIONS

OPERATIONAL SKILL ADDITION:	Item Numbers	GRADE LEVELS 4.7	5.7	6.7
Horizontal	2	1	1	1
Converting to mixed numbers	5	0	0	1
Denominator same	2	1	1	1
Denominator different	3, 4, 5	0	1	2
Finding common denominator	3, 4, 5	0	1	2
Two digit	1	1	1	1
Mixed	1, 4, 5	1	1	2

	Item Numbers	GRADE LEVELS 4.7	5.7	6.7
SUBTRACTION:				
Horizontal	7, 8, 9	1	2	2
Converting to Improper	10	0	0	1
Denominator same	7, 8, 10	1	2	2
Denominator different	9	0	0	1
Finding common denominator	9	0	0	1
Two digit	10	0	0	1
Mixed	6, 10	0	1	1
MULTIPLICATION:				
Horizontal	11, 12, 13, 14, 15	1	1	2
Reducing	13, 14	0	0	1
Converting to Improper	15	0	0	1
Converting to Whole	15	0	0	1
Denominator same	12	0	0	1
Denominator different	13, 14	0	0	1
Mixed	15	0	0	1
DIVISION:				
Horizontal	16, 17, 18, 19, 20	1	1	2
Reducing	16, 18, 20	1	1	1
Converting to Mixed	18, 20	0	0	1
Converting to Improper	20	0	0	1
Denominators same	16	0	1	1
Denominator different	18, 20	0	0	1
Mixed	20	0	0	1

CONCEPTS

	Item Numbers	NATIONAL AVERAGE GRADE LEVELS 4.7	5.7	6.7
Geometry	4, 11, 18, 20, 25	2	3	3
Measurement	3, 13, 19, 22, 25	2	3	3
Fractions	4	1	1	1
Sets	2, 17	1	2	2
Symbols	1, 3, 6, 10, 15, 17, 23	5	5	6
Language	1, 9, 11, 13, 15, 18, 20, 25	4	5	6
Money, Decimals, Place Value	5, 7, 12, 16, 21, 23, 24	3	4	5
Number words	7, 12, 16, 24	2	3	3
Number order	8, 19, 21	1	2	2
Roman Numerals	14	1	1	1
Sentences & expressions	2, 6, 11, 17, 22	3	3	4

WORD PROBLEMS

	Item Numbers	GRADE LEVELS 4.7	5.7	6.7
Addition	1, 4, 8	2	2	3
Subtraction	2, 4, 8, 11	2	3	3
Multiplication	3, 10, 12, 13, 14	2	3	3
Division	5, 6, 9, 15	2	2	3
Fractions	13	0	0	1
Two Step	4, 8, 9, 10, 11, 15	3	3	4
Graphs	7	1	1	1
Ratio	12, 13	1	1	1
Measurement	14, 15	0	1	1
Average & Sharing	6, 15	1	1	1

Learning Activity 1

Refer to the Item Analysis - Mathematics on Pages I-F2-5 through I-F2-8. List the four areas included in the mathematics section of the Item.

Check your answers with those given on Page I-F2-11.

Learning Activity 2

Refer to the Item Analysis - Mathematics on Pages I-F2-5 through I-F2-8. List the operational skills under each of the four identified in Learning Activity 2.

Check your answers with those given on Page I-F2-11.

Learning Activity 3

Refer to the Item Analysis - Mathematics on Pages I-F2-5 through I-F2-7. List the sub-operational skills of each of the major operations identified for whole numbers and fractions from Learning Activity 2.

Check your answers with those given on Page I-F2-11.

Learning Activity 4

Refer to the Item Analysis - Mathematics on Pages I-F2-5 through I-F2-8. Note that in the mathematics sections there are two major sub-skill activities for these operations of addition, subtraction, etc. These are either operations with re-grouping or without re-grouping. Therefore, all sub-skill operations will be included in either type.

1. In what sub-skills in addition is item number 1 included?
2. In what sub-skill areas are item numbers 17 and 18 included?
3. In what sub-skill areas are item numbers 9 and 12 included?
4. In what sub-skill areas in Subtraction are items 7 and 16 included?
5. In what sub-skill areas in Multiplication is item number 44?
6. In Fractions under addition, describe the item number 5.

Check your answers with those given on Page I-F2-12.

Learning Activity 5

By using the information developed about the item numbers listed in Learning Activity 4, develop a mathematics item which will fit each of these sub-skill areas.

Check your answers with those given on Page I-F2-12.

Learning Activity 6

By using the information developed about the items in Learning Activity 5, develop a criterion-referenced test of ten items for addition of whole numbers without re-grouping. Keep in mind each sub-skill should be covered.

Check your answers with those given on Page I-F2-14.

Answers to Learning Activities

Learning Activity 1

1. Computation - Whole Numbers
2. Fractions
3. Concepts
4. Word Problems

Learning Activity 2

1. Computation - Whole Numbers:

   Addition; Subtraction; Multiplication; Division and Decimals

2. Fractions:

   Addition; Subtraction; Multiplication and Division

3. Concepts:

   Geometry; Measurement; Fractions, Sets; Symbols; Language; Money; Decimals; Place Value; Number Words; Number Order; Roman Numerals; Sentences and Expressions.

4. Word Problems:

   Addition; Subtraction; Multiplication; Division; Fractions; Two-step Operations; Graphs; Ratio; Measurement; Average and Sharing.

Learning Activity 3

1. Computation - Whole Numbers:

   a. Addition: Without re-grouping; With re-grouping; Two-Digit; Three-Digit; Three Addends; Operation With Zero; Sentences and Expressions; Measurements.

   b. Subtraction: Without re-grouping; With re-grouping; Two-Digit; Three-Digit; Operation With Zero; Sentences and Expressions; Measurement.

c. Multiplication: Without re-grouping; With re-grouping; Two-Digit; Three-Digit; Operation With Zero; and Measurement.

d. Division: Same as in Multiplication.

e. Decimals: Addition; Subtraction; Multiplication; Division; and Money.

2. Fractions

a. Addition: Horizontal; Converting to Mixed; Denominators Same; Denominators Different; Finding Common Denominator; Two-Digit; Mixed.

b. Subtraction: Horizontal, Converting to Improper; Denominators Same; Denominators Different; Finding Common Denominator; Two-Digit, and Mixed.

c. Multiplication: Horizontal; Reducing; Converting to Improper; Converting to Whole; Denominators Different, Mixed.

d. Division: Horizontal; Reducing; Converting to Mixed; Converting to Improper; Denominators Same: Denominators Different, and Mixed.

Learning Activity 4

1. Item #1: Addition without re-grouping, Two-Digit.

2. (a) Item #17: Addition without re-grouping; Three-Digit; Three Addends; Operation with Zero; Sentences and Expressions.

(b) Item #18: Addition without re-grouping; Measurement.

3. (a) Item #9: Addition with re-grouping; Two-Digit.

(b) Item #12: Addition with re-grouping; Three-Digit; Three Addends; Operation with Zero.

4. (a) Item #7: Subtraction without re-grouping; Three-Digit; Operation with Zero.

(b) Item #16: Subtraction with re-grouping; Three-Digit; Operation with Zero; Sentence and Expression.

5. Item #44: Multiplication with re-grouping; Three-Digit; Operation with Zero.

6. Item #5 Fractions: Addition of Fractions Including Converting to Mixed Numbers; Denominators Different; Finding Common Denominator; Mixed Operation.

Learning Activity 5 (Answers Will Vary - Use As a Guide Only)

1. Item #1: Addition Without Re-Grouping; Two-Digit.

11	12	35	45
+7	+15	+24	+33

2(a). Item #17: Addition Without Re-Grouping; Three-Digit; Three Addends; Operation with Zero; Sentence and Expression.

400 + 12 + 131; 201 + 150 + 126

(b). Item #18: Addition Without Re-Grouping; Measurement.

4 feet 2 inches	6 yards 4 feet
+3 feet 6 inches	+2 yeard 5 feet

3(a). Item #9: Addition with Re-Grouping; Two-Digit.

7	37	29	48
+26	+56	+58	+27

(b). Item #12: Addition with Re-Grouping; Three-digits; Three Addends; Operation with Zero.

4105	36	203	400
236	120	150	209
+12	+27	+319	+198

4(a). Item #7: Subtraction Without Re-Grouping; Three-Digits; Operation with Zero.

256	495	320	345
-140	-80	-100	-102

4(b). Item #16: Subtraction with Re-Grouping; Three-Digits; Operation with Zero; Sentences and Expressions.

206 - 148 ; 415 - 80 ; 1320 - 108 ;

from 340 subtract 152.

5. Item #44: Multiplication Without Re-Grouping; Three Digits; Operation with Zero.

1027	503	738	1006
x205	x40	x70	x214

6. Item #5 Fractions: Addition of Fractions Including Converting to Mixed Numbers; Denominators Different; Finding Common Denominator; Mixed Operation.

4 1/2	2 2/3	8 1/4	5 1/6
+8 2/3	+6 1/4	+3 1/2	+3 2/3

Learning Activity 6 (Answers will vary - use as a guide only - however, items number 1, 4, 17 and 18 should include examples of each sub-skill.)

11	35	46	
+7	+24	+33	= Item #1

400 + 12 + 131
201 + 150 + 126
= Item #17

507	708	310	
+1460	+281	+203	= Item #4

4 feet 2 inches
+3 feet 6 inches
= Item #18

6 yards 4 feet
+2 yards 5 feet

SELF ASSESSMENT

After you have completed the material in this module, you are ready for your self-assessment. On a separate sheet of paper, answer the collowing questions:

1. Are you able to identify the major areas of mathematics on a norm-referenced test? YES____NO____
2. Are you able to identify operational skill areas in mathematics? YES____NO____
3. Are you able to identify sub-operational skill areas for each mathematics operation? YES____NO____
4. Are you able to determine the meaning of various test items? YES____NO____
5. Can you construct a test item based on sub-skills of a mathematics operation? YES____NO____
6. Do you feel that you are able to construct a criterion-referenced test based on what you have done in this module? YES____NO____

If you have had difficulty with any of these questions, please notify the project director for further help.

PACKET II

ANALYSIS

MODULE A

PREVIOUSLY COLLECTED DATA

INTRODUCTION

The diagnostic process of administering and scoring tests and of collecting other forms of data is not very helpful to a teacher unless the data are carefully examined. This process of scrutiny and critical study is analysis as referred to in this module.

A teacher has a vast storehouse of information in a student's folder which may contain printouts from achievement tests, academic aptitude test results, social and family background sheets, and all the other diagnostic records which may have been accumulated about the student. The effective use of such information is the key to diagnostic-prescriptive teaching. Also, it is an individualizing process, where the teacher's first step must be directed to a careful study of the child.

This module includes general background information which will offer suggestions for the analysis of collected data. Although not covered specifically, all types of diagnosis are included in summarized guides for study. Several exercises are offered for practice with the analytic process as well as some examples of forms for summaries of analytic observations.

Objectives

1. The participant will be able to distinguish between the process of collecting data and the purpose of analyzing the information collected.

2. The participant will be able to use the five given suggestions for analyzing collected data to summarize the findings.
3. The participant will be able to analyze data to identify strengths and weaknesses of a learner.
4. The participant will be able to utilize or to construct a summary analysis chart which will be applicable to an individual reading or mathematics class.

Directions

Read all the supportive information in the module and answer the questions in the four learning activities which are included. Score yourself on the self-assessment questions at the end of the module.

Supportive Information

Each published test or inventory manual can provide the teacher with direct assistance in the interpretation of test scores. Although the process of analysis is the study of data, the process is not limited to the analysis of test results.

Manuals for each test must be available for study and research as they explain the meaning of various symbols, terms, and scores. The analysis of such scores or results begins after basic terminology has been mastered.

When analyzing test data, it must be remembered that test scores are results of one reaction to a controlled learning task and are directly affected by such factors as fatigue, interest, and motivation. All tests give only a limited measure of the learner's ability and indicate only a sample of performance at one moment in time.

For these reasons, one identified weakness should not determine the diagnosis of a learner. First, any weakness or deficiency within an area of expected attainment should be further substantiated by additional investigation. Second, any identified weakness should be viewed as it relates to other weaknesses and to strengths. Not only does the analysis of all collected data provide the basis for planning learning improvement, but often it leads to the identification of the specific cause of learning problems. Additional tests may show specific specifics which initial screening does not.

A diagnostic teacher always operates within some boundaries: age-span of class, space, subject area, student load, availability of funds, or job description. Children who do not fall within the criteria for the diagnostic class should be referred to appropriate agencies. Some children will be diagnosed as learning disabled, mentally retarded, or emotionally disturbed. Programs for Exceptional Children and Youth have specific characteristics for their identification. If the school system provides teaching units for these categories, the learner should be immediately referred so that proper placement can be made to serve the learner's needs. When school systems do not have these services, the diagnostic teacher must seek to develop appropriate instructional plans within the limits of available resources. Similarly, children with physical or social problems should be referred to proper available resources.

Complex or severe deficiencies should be verified by specialized personnel before placement is made. Many tests given for assessment only serve as screening devices for specialized evaluations. For example, children who reverse letters should not be indiscriminately diagnosed as having dyslexia. Using this extreme example, as a reminder, diagnostic teachers should use analysis within this realistic summation: "The analysis of all collected data appears to indicate..." While studying all data, teachers will be constantly alert to clues--making specific notes to be compiled along with the summary of data for an individual or a group.

To assist the diagnostic teacher in the analytic process, five suggestions have been summarized to cover all diagnostic data. These are not in any particular order, since no specified sequence of events has been recommended for analysis. Neither should the diagnostic teacher feel that all five suggestions must be completed thoroughly on each child before instruction can begin, as diagnostic evaluation is a continuing process before, during, and after instruction.

1. Determine if Any Further Diagnosis Is Needed

For example, after reviewing all test data, a question may still exist as to the innate ability of a learner to comprehend abstractions and generalizations of a phonics program. Group mental maturity test scores were borderline. Therefore, analysis of mental ability would indicate that another test should be given. Specific types of tests can be suggested, but it must be remembered that testing should proceed only to the level where weaknesses are indicated.

2. Ascertain Skills Mastery

When teachers understand the learning process and basic skill development, they can determine the student's readiness for further growth by examining the degree of skill attainment to date.

If criterion referenced tests have been given, it is fairly easy to assume that readiness skills have been acquired if the student begins to make errors, it can be assumed that he can proceed in the sequence since he has mastered the easier (or preparatory) skills.

Mastery can be identified by task analysis and by a study of correct responses. When the student consistently answers a type of question correctly, his performance can be considered as skill mastery. Math and reading diagnostic tests are relatively easy to assess in this matter. Observations made by professionals also contribute to this type of analysis.

3. Look for Patterns

Subtest scores which categories test items can indicate areas of strengths and weaknesses. (Such areas as concrete, abstract, verbal, non-verbal, visual, auditory, etc., may be categorized.) Furthermore, item analysis can often indicate reasons for errors. Upon examination of vocabulary items, for example, a pattern of errors related to limited background or environment may emerge. Measures in arithmetic computation are easier to summarize than in language skills.

Some patterns of error are purely mechanical in nature and do not reflect skill development. A student who missed the last 7 items on a test may not have turned the last page, may have run out of time,

may have run out of time, may have gone to the rest room, or may not have asked to sharpen his pencil. Before these errors are marked as a grave deficiency, it should be determined that the omissions or errors were caused by a lack of skill and understanding.

On achievement tests, items are generally arranged in order of developmental difficulty. The student will usually miss all succeeding items when his level of efficiency has been reached. However, if a pattern is observed with scattered successful responses beyond the estimated level of mastery, the student may have been guessing or his mastery may not have been sequential. Either of these conclusions would indicate a need for remedial instruction beginning at the level of success below his errors, and a need for further diagnosis in the specific area.

4. Attempt to Determine How The Child Learns

Since there are few instruments for classroom teachers to use to determine learning style or mode, analysis of learning style can be made by observation. This is a very distinct area where the diagnostic task of collecting data is analytic.

As the child is presented instructional activities or testing material (commercial or teacher-made), the teacher's observation may indicate the learning style of the student. Answers to questions such as those listed below will offer valuable diagnostic information:

a. How does the student attack a learning problem?

b. Does the student have difficulty receiving information? Orally? In writing?

c. Does the student have difficulty expressing information? Orally? In writing?

d. Does the student have difficulty processing information or making association with information?

e. In which kind of task did the student have the greatest success?

Again, an examination of errors leads to defined patterns of learning when the diagnostic teacher focuses on tasks required of the student. Such questions as the following should be answered.

a. Were tasks visually presented?

b. Were tasks orally presented?

c. Did tasks require multi-sensory response?

5. Observe Quality of Responses

As noted under a previous heading, keen observation of a student during an instructional activity or an evaluation task provides valid factors for consideration in the diagnostic process. Decisive and correct responses usually indicate a student who has sufficient mastery for the specific question or task. (Observations and notations of student behavior by the test examiner during testing are often quite helpful.)

Summarizing Analysis

While examining the collected data, the diagnostic teacher should meticulously note clues. Some teachers have designed summary sheets which lists major headings with space left for the teacher to make notes. Charts, graphs, case-study forms, and other devices have been used successfully. The summary sheet allows objective analysis at

each point in the diagnostic process and with each examination of separate data. The notes on the summary sheet then provide keys for the analysis conclusion which in turn directs the teacher to plans, materials, and the learner's prescription.

Clusters of factors noted on various diagnostic tests may indicate contributing causes for deficient learning. Possible causes noted prior to diagnosis will be confirmed or negated by the analysis of findings. However, all analysis of data will not result in a clear-cut hypothesis for prescriptions. The process of diagnosing students and collecting and analyzing data continues daily throughout any instructional program with observation of the student, with noted progress toward goals and objectives, with identification of new problem areas, and with instruction involving different learning tasks.

Record Keeping

Each program or system advocates some type of record keeping or summary for recording diagnostic data. Teachers in a school or a school system should establish a format which can be easily used and which provides adequate information which will be needed to plan instruction. Many schools have adopted a dual plan for recording data. An individual folder is usually kept on each child, which contains actual tests and response sheets of the learner, with an individual summary sheet for all diagnostic data to be recorded. This is the teacher's diagnostic folder. (A child often has another folder for his prescription and copies of his work.) Group charts are also encouraged for effective class management. Although charts are limited to the amount and kinds of data recorded, a matrix plan

allows a teacher to quickly ascertain work assignments and to determine group needs. Skill charts for individuals and groups are often used with students as part of the planning process as a means to indicate progress and as an aid for individual motivation.

Four examples of summary analysis and diagnostic charts are found for your examination on the following pages. Only the first page of each chart has been included to indicate types of notations. Other forms can be found in various commercial products and with some diagnostic instruments. Many teachers design forms which fit a specific situation and include specific types of diagnostic instruments that are available.

SAMPLE ACTIVITIES FOR DIAGNOSTIC TEACHING

OBSERVATION GUIDES FOR DIAGNOSTIC READING ACTIVITIES

Word Skills															
Pupil Names	Aud. Vis. Disc.	Initial Con.	Diagraphs	Blends	Final Con.	Silent Con.	Vowels	Plurals	Comp. Words	Cont.	Suffixes Prefixes	Syllab.	Root Words	Context Clues	Motivation

Comprehension Skills										
Pupil Names	Synonyms	Antonyms	Homonyms	Fig. Lang.	Lit. Comp.	Interp. Comp.	Crit. Rdg.	Study Skills	Oral Rdg.	Motiv.

DEVELOPMENTAL SCREENING

PRIMARY DEVELOPMENTAL CHECKLIST (AGES 4-6)

AUDITORY:	YES	NO
1. Does the child turn or cup one ear to the speaker? (hearing)	___	___
2. Does the child fail to answer to his name from behind? (hearing)	___	___
3. Voice		
excessively loud _____	___	___
excessively soft _____	___	___
monotone _____	___	___
4. Does the child consistently ask to have words repeated? (hearing)	___	___
5. Does the child have difficulty repeating a clapped sequence? clap-clap clap-clap (memory-sequence)	___	___
6. Does he fail to follow more than one direction? (memory-sequence)	___	___
7. Does he fail to remember the sounds of things: animal, home, or nature (memory)	___	___
8. Does he fail to follow the rhythm in band playing activities? (memory-sequence)	___	___
9. Is he unable to pay attention when there is noise in the room? (figure-ground)	___	___
10. Does the child fail to tell the difference between human vs. non-human sounds? (discrimination)	___	___
11. Does the child fail to tell when sounds are the same or different? (discrimination)	___	___
12. Is he unable to locate the source of direction of sound? (localization)	___	___
13. Does he fail to understand that the sound "m" in the word "man" is the same as the sound of "m" in the word "mop"? (auditory-auditory association)	___	___
14. Is he unable to identify most of the letter sounds? (auditory-visual associative memory)	___	___
15. Is he unable to identify most of the letter names? (auditory-visual associative memory)	___	___

DIAGNOSTIC WORKSHEET

	Strengths	Average	Weaknesses
AUDITORY			
SENSORY (Acuity)			
PERCEPTION:			
Figure-ground			
Closure			
Discrimination			
Localization-attention			
IMAGERY:			
Memory			
Auditory-Auditory association			
Auditory-Visual association			
Sequencing			
VISUAL			
SENSORY (Acuity)			
PERCEPTION:			
Figure-ground			
Closure			
Discrimination			
IMAGERY:			
Memory			
Sequencing			

DEVELOPMENTAL INVENTORIES

ANALYSIS OF ERRORS

Name _____ School _____

Date _____ Grade _____ Date of Birth _____

Examiner _____

DEVELOPMENTAL SPELLING INVENTORY

Auditory Errors (A check mark indicates difficulty)

1. Substitutions (t for d, f for v, sh for ch) ___
2. Omits vowels (brd for bird) ___
3. Omits second consonant in blends (rut for rust) ___
4. Uses synonyms (house for home) ___
5. Wild guesing (yot for yes) ___
6. No response ___
7. Vowel sound confusion (but for bat) ___
8. Omits word endings such as ed, s, ing ___
9. Cannot remember spelling rules ___

Visual Errors

1. Writes the beginning letters only ___
2. Reversals of words or letters (b for d, or on for no) ___
3. Inversions of letters (m for w) ___
4. Mixture of capital and small letters (baBy) ___
5. Spells phonetically (cannot revisualize) ___

Other Errors

Study the item analysis of Diane Press in the two inserts on this page, a.) Reading Vocabulary, and b.) Division. Answer the following questions on a separate sheet of paper.

a.) Reading Vocabulary

1	+	15	+	29	+									
2	+	16	-	30	0									
3	+	17	+	31	0									
4	+	18	+	32	0									
5	+	19	-	33	0									
6	-	20	-	34	0									
7	+	21	-	35	0									
8	-	22	-	36	0									
9	-	23	-	37	0									
10	+	24	-	38	0									
11	+	25	-	20	0									
12	-	26	-	40	0									
13	-	27	-											
14	-	28	+											

b.) Division

29	+	37	-	45	-			
30	+	38	-	46	-			
31	+	39	-	47	-			
32	+	40	+	48	-			

a. Reading Vocabulary

Successful answers #28 and #29 follow nine successive errors. Which of these statements would you conclude from your study?

___1) Diane probably guessed at the answers #28 and #29, since she had previously missed so many.

___2) The words for #28 and #29 are very common in Diane's environment:

#28_____ #29_____

so a diagnostic test should be given to her.

b. Division - Mathematics Computation

Diane was correct in the first four items, then missed three, was correct on #40 and missed the last four items (#40 was 240 ÷ 20). Which of these statements would you agree with as an analysis of these scores?

___1) Diane probably guessed at #40 since she missed all other division problems which required regrouping (#38, #45, and #47).

___2) Diane obviously understands some division concepts or operations better than others and needs a diagnostic test on division to substantiate specific division strengths and weaknesses.

___3) Upon examination of Diane's answer sheet, it was found that #38, #39, and #47 had been erased and re-marked in such a way to have not been read by the computer. Therefore, Diane probably understood the division tasks through item #45, missing only the computation of #37.

Compare your answers with those given on page II-A-19.

Learning Activity 2

Upon examination of fourth grade student M's diagnostic scores, the following data were found:

California Achievement Test (9-1-75)		
Total Reading 3.6	Total Arithmetic 4.1	
Informal Reading 3.0	Key Math 3.5	(10-17-75)
Inventory (9-7-75)		

Write your answers to the following questions on a separate sheet of paper.

a. For instructional activities, at what level would you plan to introduce new skills?

   1) Reading_____

   2) Arithmetic_____

b. What other analysis would you make?

   1) Reading_____

   _____

   2) Arithmetic_____

   _____

Compare your answers with those given on page II-A-19.

Learning Activity 3

After study of the following information, write the answers to questions a. and b. on a separate sheet of paper.

Student H, Age 9, Grade 2

Otis Quick Score Mental Ability - I.Q. 68

1-Year Kindergarten

2-Years in First Grade

1st Year in Second Grade

Slurs Speech, Poor Motor Development, Sick Often, Easy to Cry, Interested in Small Toys and Dogs

Vision and Hearing Screening - O.K.

Very Little Progress In Any Academic Area, CAT, Reading 0.6 and Math 0.8

a. What further testing would you recommend?

b. List other services Student H should receive for possible help or care and specify type help requested.

___1) School Social Worker_____

___2) School Health Nurse_____

___3) School Principal_____

___4) Physician_____

___5) Parents_____

___6) Special Education_____
(Coordinator and Screening Committee)

Compare your answers with those given on page II-A-20.

Learning Activity 4

Student B

Item Analysis of an achievement test shows the following results:

	(+) Correct	(-) Error	(0) No Response
1. -	6. +	11. +	16. -
2. -	7. +	12. -	17. -
3. +	8. -	13. +	18. +
4. -	9. +	14. -	19. +
5. +	10. -	15. +	20. -

The items on this test were presented with increasing difficulty.

What analysis can you suggest for student B?

(Write your response on a separate sheet of paper)

Compare your answer with that given on page II-A-21.

ANSWERS TO LEARNING ACTIVITIES

Activity 1

a. Vocabulary

1) Could be correct because of the wide scattering of answers.

2) Is also a possible assessment.

b. Division

1), 2), and 3) are feasible assumptions.

3) If further testing indicates adequate understanding of division computation, this area would not be listed as a weakness at this grade level.

Activity 2

a. 1) Instructional level for reading should begin on 3rd grade level or slightly below to insure success.

2) In arithmetic, instructional level should begin with 3rd grade level, also.

b. Other analysis: Neither grade placement score offers much information, except to indicate weaknesses in both subject areas. Both the Informal Inventory and Key Math require oral response to auditory questions. Other analysis could be given upon item analysis of both tests in each area. Key Math will give the teacher specific strengths and weaknesses with regard to mathematics concepts. The Informal Inventory, if scores diagnostically, can show specific needs in word attack skills and skills of immediate recall.

Activity 3

a. 1) If the services of a psychometrist are available, request administration of an individual psychological test to determine validity of the screening I.Q. test of 68. If, on the second test, the student has a score of 78 or below, referral should be made to the system placement committee.

2) Also, student H should be evaluated by the speech therapist.

3) Testing of visual-motor coordination might also be helpful.

In summary, it appears as though this child has complex deficiencies and should be seen by specialists.

b. 1) Request a home visit to determine whether any possible causes can be determined in the social environment.

2) Request that the nurse verify eye and ear tests and to examine the child for any physical correction or treatment which should be arranged.

3) Request that parents come to school for a conference.

4) The principal must know about all services which are requested outside the school.

5) The physician might be requested to provide a medical summary of the child's status if that need is indicated by the teacher and the nurse. This request should be made to the parents.

6) Pertinent data should be sent to the Special Education Placement Committee, if placement is indicated.

Activity 4

a. The test responses suggest that Student B probably guessed on many responses since the first items were missed, and some harder items were correct. Also, the correct items were scattered throughout the test.

b. If these responses are true understandings, the student has not mastered a sequence of skills.

c. Based on either of these assumptions, it could be recommended that further testing is needed to substantiate either a. or b.

Self Assessment

After you have completed material in this module, you are ready for your self-assessment.

1. Answer the following questions on a separate sheet of paper:

   a. Do you feel that you can distinguish between the process of collecting data and the process of analyzing the information found in the data? Yes____ No____

Comments:

   b. Using the five suggestions for summary analysis, what types of diagnostic data will you examine in your school?

   c. What referrals can you as a diagnostic teacher make to other agencies or for other services if further diagnosis is needed?

   d. What information do you feel should be included on an analysis chart or form for an individual learner?

   e. What information do you feel should be included on a class analysis chart?

   f. Which area of analysis is the easiest for you to summarize?

Which area of analysis is the hardest for you to summarize?

g. What do you feel should be the first step in the analysis of collected data?

the second?

the third?

h. Do you feel that you can identify, through analysis of the collected data, the learner's strengths and weaknesses?

Yes____ No____

Comments:

2. Discuss your answers with the project director.
3. If you have had some difficulty with your study and the learning activities found in this module, please notify the project director for further help.

OR

If you have had few or no problems with your study and the learning activities in this module, you may proceed to the next learning module.

PACKET II

ANALYSIS

MODULE B

KEYING AND SELECTING AVAILABLE MATERIALS

INTRODUCTION

Selection of material is not ordinarily considered a part of the diagnostic process. However, before a prescription can be written, material must be easily accessible. Of more importance, material must be specifically chosen to facilitate learning during the prescribed instruction.

Objectives

After completing the learning activities in this module, the participant will:

1. Be able to inventory available materials and identify specific skills for which the material can appropriately be used.
2. Be able to design a system for keying materials to skills.
3. Be able to select materials which have been keyed to specific skills.

Directions

Complete as many of the learning activities as you feel are necessary for you to know how to key and select available materials. Score yourself on the self-assessment sheet at the end of the module.

Supportive Information: Inventory and Selection of Materials

Materials are only tools or means, not the end, for prescriptive teaching. When appropriately selected for a learning activity, they assist the student in reaching specific objectives.

After objectives and teaching procedures have been selected, materials must be gathered which seem to meet the needs of the student. Ideally, the teacher will have these necessary materials available. Every classroom and library house a vast array of materials from which to choose. Commercial products, however, are designed for different objectives and follow different patterns or sequences, therefore, accurate selection cannot always be made without adapting them to the local program.

Some publishers have keyed their materials to behavioral objectives, and some have listed other commercial products which are directly related to the specified objectives. These lists, by skill objective, may be very helpful. However, availability of materials varies greatly from classroom to classroom and from system to system. Therefore, it is imperative that the diagnostic teacher becomes thoroughly familiar with all materials available for use in the local school and system.

Since both reading and mathematics instruction are developmental in nature, sequence of skills can be utilized in material analysis. Using a continuum of skills, the diagnostic teacher can categorize all materials within her class. A system-wide effort to key resources will further expand the number of resources available. For this reason, a single system of skill development is suggested for use within a school system.

Using a skill continuum, a simple key should be designed so that material can be identified as to skill and to performance level. As

a teacher inventories the material, it is keyed to a specified skill, and the material is labeled accordingly.

To further illustrate the inventory keying process, several examples of teacher's keys have been included on the next pages. The examples on Page II-B-5 show copies of skill cards listing the performance level (A) and the skill number and description. These examples do not include a behavioral objective, but the objectives are listed elsewhere. As the teacher examined materials, she listed the exact part of the item which corresponded to that skill.

At the same time, the key level and skill (A.5, etc.) should be placed directly on the material. In cases where each part related to a different skill, this cross-keying may be more efficiently attached to a Table of Contents for the material.

On Page II-B-6 there is another example of a method used by a teacher to key material to behavioral objectives. She used a separate sheet of paper for each skill (portions of two pages are shown here). Available materials are inventoried and analyzed, and the teacher lists specific parts of items to be used.

Page II-B-7 illustrates the method which one system developed for listing the materials for each level, including objectives, methods, and measurements.

A similar format is shown on Page II-B-8. Here the number refers to an inventory of materials from the reading center, and the number would be entered "Material No." opposite the appropriate needs.

After keying materials to skills, teachers can quickly identify gaps in available aids for instruction. Teachers can then choose or develop appropriate material to fill these gaps related to specific skills.

If the teacher, the school, or the school system has developed a continuum of skills and has keyed the available material to the skills, the selection of actual materials becomes a much easier task.

Available Material

Suggestions for developing an inventory of available materials include the following:

1. Secure a skills list which will be used in your school system for reading or mathematics.
2. Develop a key for each skill.
3. Plan your inventory system: 3" x 5" cards, 5" x 8" cards, looseleaf notebook, Macbee cards, charts, etc.
4. Inventory available materials:

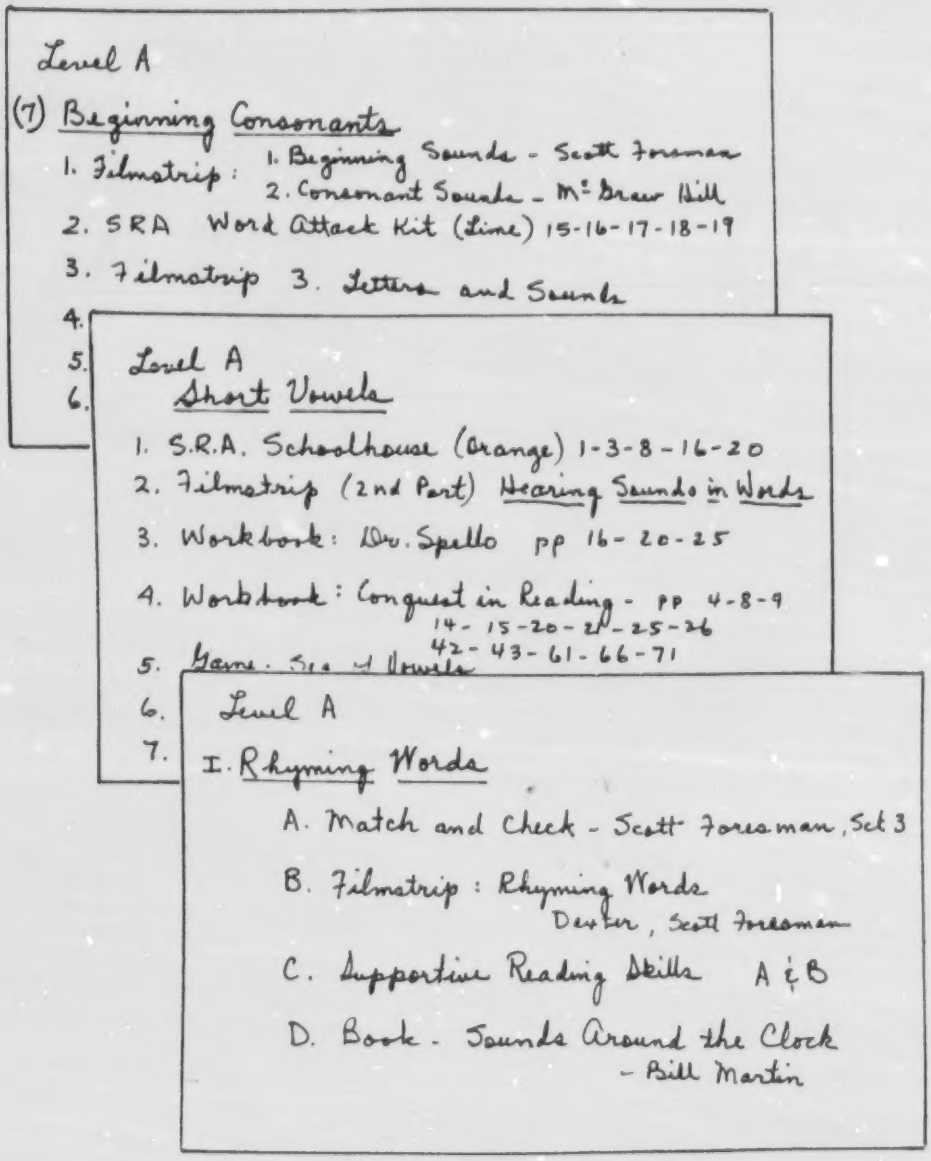
   ___listing exact parts of material to be used.

   ___indicating equipment needed.

   ___indicating primary learning preference used.

SUPPORTIVE INFORMATION

SAMPLE - SKILL CARDS



Level A

(7) Beginning Consonants

1. Filmstrip: 1. Beginning Sounds - Scott Foresman
   2. Consonant Sounds - Mc Graw Hill
2. SRA Word Attack Kit (Lime) 15-16-17-18-19
3. Filmstrip 3. Letters and Sounds
4.
5.
6.

Level A

Short Vowels

1. S.R.A. Schoolhouse (Orange) 1-3-8-16-20
2. Filmstrip (2nd Part) Hearing Sounds in Words
3. Workbook: Dr. Spello pp 16-20-25
4. Workbook: Conquest in Reading - pp 4-8-9
   14-15-20-21-25-26
   42-43-61-66-71
5. Game. See of Vowels
6.
7.

Level A

I. Rhyming Words

A. Match and Check - Scott Foresman, Set 3

B. Filmstrip: Rhyming Words
   Dexter, Scott Foresman

C. Supportive Reading Skills A & B

D. Book - Sounds Around the Clock
   - Bill Martin

SAMPLE - SKILL SHEETS

fl 5-C

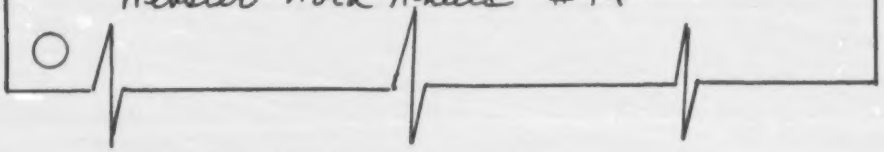
Recognize the sound of the letters fl at the beginning of a word.

Schoolhouse - Rose 2

Audio - Progress - Level 1, Tape 10-A-1 (p.76)

Phonics Practice #43 & #44

Webster Word Wheels #14



St 6-B

Recognize the sound of the letters st at the beginning of a word.

Audio Progress - Level 1, Tape 10-B-1 (p.80)

S-blends [6A] - [6B]

Audio Progress - Level 2, Tape 8-A-1 (p-60)

Phonics Practice Cards 35-38

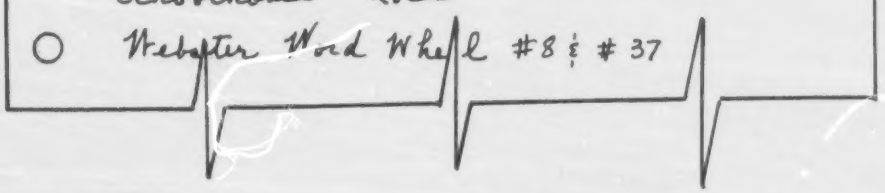
Reaching Up - Worksheet M 2-9

Scholastic Activity - game and card {S-7 G-14

Craft Test p-7 & p.8

Schoolhouse Rose

Webster Word Wheel #8 & #37



II-B-7

First Year

TITLE I READING PROGRAM - SCHOOLS

DATE 1974-1975

SCHOOL _____

OBJECTIVE	METHODS USED	PROGRAMS AND MATERIALS	MEASUREMENT
By the end of the first semester, the readiness students will be able to recognize their first and last names and be able to write them in manuscript.	large groups small groups individuals	Name tags practice on lined paper	Teacher Observation
By the end of the first semester, the readiness students will have learned to recognize their twelve colors, the color names, and be able to match them.	large groups small groups individuals	Let's Learn the Colors & Their Names - Imperial Flash Cards Sullivan Readiness It's Fun to Listen-Milliken Teacher-made Color Wheels Worksheets	Teacher-made tests Test Worksheets Matching names & colors on color wheels
At the end of the first semester, the thirty-one readiness students will be able to identify the four simple shapes and their names.	small groups individuals	It's Time to Think Shapes Wheels Objects - Flash Cards Sullivan Readiness Charts Stories about Shapes - Cornet Films and tapes	Teacher-made tests Test Worksheets
Twenty-seven of the thirty-one readiness students will know right, left, up, down, top, bottom, middle, alike, different, by the end of the year.	large groups small groups individuals	It's Time to Think-Milliken Let's Match Lines & Shapes Instructo Sullivan Readiness Chart Teacher-made worksheets Games	Teacher-made tests Gates McGinitie Observation Individual oral testing

TEACHER _____

First Grade

NEEDS	OBJECTIVE	PRESCRIPTIVE MATERIAL NO.	EVALUATION PRE	EVALUATION POST
E. Recall what has been read aloud	After hearing the teacher read aloud "The Barnyard Fuss" (the refrain type of poem), the student will be able to make noises like the animals with 80% accuracy.			
IV. Oral and Silent Reading Skills: A. Oral Reading 1. Simple punctuation: period comma question mark	Given flash cards of simple punctuation--period, comma, question mark and exclamation mark--and a five second exposure for each, the student will be able to identify the marks with 3 out of 4 correct.			

MATERIALS

Readiness Level
First Grade Level

1. Kindergarten Kit
2. Learning the Alphabet and It's Sound
3. Dolch's 220 Basic sight words
4. Listen and Think Auditory Program
5. Controlled Reading Films and Questions
6. Gaint Alphabet Box
7. The First Talking Alphabet
8. Peabody Language Kit - Level 1.0
9. Readers Digest Reading Skill Builders
10. Relationship Cards
11. Reading-Writing Readiness Charts
12. Dolch Picture Word Charts
13. Records
14. Adventures in Discovery Program
15. Comprehensive Card Set
16. Puzzles - Nursery Rhymes
17. Games
18. Learn-to-Write Manuscript Letters
19. Motivators-Letters and Numbers
20. Records and Books
21. Curriculum Filmstrips
22. Word Games
23. Playmate Puppets & Hand Puppets

Learning Activity 1

Using the partial Table of Contents from three skill-building kits on Pages II-B-10, II-B-11, and II-B-12, and the specific skill listed below, list on a separate sheet of paper the number of cards and lessons which could be used in prescriptions.

Vowels Controlled by R

1.
2.
3.
4.
5.

Check your answers on Page II-B-13.

Learning Activity 2

Use the partial Table of Contents from three skill-building kits, Pages II-B-10, II-B-11, and II-B-12, and write on a separate sheet of paper the key number for the skills given below. Your list should show with what skill the card or lesson will be used. Key the material to these skills:

Key Number	Skill
a. A - 4 ____	Short Vowel Sound of E
b. A - 18 ____	Review of Final Single Consonants

Check your answer on Pages II-B-14 and II-B-15.

SKILL BUILDING KIT #1

Card A

1. Terms short, checked; introduction to short vowels
2. Terms long, free; introduction to long vowels
3. a
4. e
5. i
6. o
7. u
8. Reinforcement of short and long vowels
9. y as a vowel and as a consonant
10. Vowel with silent e
11. Vowel with silent e
12. Reinforcement of short and long vowels
13. Vowel digraphs
14. Vowel digraphs
15. Vowel digraphs
16. General reinforcement
17. General reinforcement
18. General reinforcement
19. General reinforcement
20. General reinforcement

Card B

1. Vowels controlled by r
2. Vowels controlled by r
3. Vowels controlled by r
4. Reinforcement of vowels; long, short, and controlled by r
5. Reinforcement of vowels; long, short, and controlled by r
6. Reinforcement of vowels; long, short, and controlled by r.
7. Digraph ea with two sounds
8. Digraph ow with two sounds
9. Digraph oo with two sounds
10. Reinforcement of digraphs with two sounds
11. Diphthongs ow, ou with similar sounds
12. Digraphs ew, oo, ue with similar sounds
13. Diphthongs oy, oi with similar sounds
14. Digraphs al, au, aw with similar sounds
15. Reinforcement of digraphs and diphthongs with similar sounds

SKILL BUILDING KIT #2

Lesson 23. sp, sl, sc, sm as Beginning Blends, 59

24. st, sk, sn and sw as Beginning Blends, 62

25. br, tr, gr, fr, and dr as Beginning Blends

26. cl, bl, fl, and pl as Beginning Blends, 68

27. m and d as Final Sounds, 70

28. f and g as Final Sounds, 73

29. b and g as Final Sounds, 73

30. Review of f, g, b, l, m, and d as Final Sounds, 78

31. p and r as Final Sounds, 80

32. k and n as Final Sounds, 83

33. s, t, and y as Final Sounds, 86

34. Review of p, r, k, n, s, t, and y as Final Sounds, 90

35. Practice for all Consonants Except Q and X as Beginning and as Final Sounds, 92

36. Short A, 94

37. Short E, 97

38. Review of Short A and Short E, 99

39. Short I, 101

40. Short O, 103

41. Review of Short I and Short O, 105

42. Short U, 107

43. Review of Short Vowel Sounds, 109

44. Long A, 111

45. Long I, 114

SKILL BUILDING KIT #3

1. Initial br-tr-gr-fr-dr-cr and Review (s-blends)
2. Initial cl-bl-fl-pl-gl
3. Initial cl-bl-fl-pl-gl
4. Initial cl-bl-fl-pl-gl and Review
5. Initial cl-bl-fl-pl-gl and Review
6. Final m-d
7. Final f-g
8. Final b-l
9. Review Final m-d-f-g-b-l
10. Final p-r
11. Final k-n
12. Final s-t
13. Review Final p-r-k-n-s-t
14. Short Vowel Phonograms (-and, -an, -at)
15. Short Vowel Phonograms (-ent, -en, -ell)
16. Short Vowel Phonograms (-ad, -ack, -et)
17. Short Vowel Phonograms (-in, -ill, -it)
18. Short Vowel Phonograms (-ot, -op, -ock)
19. Short Vowel Phonograms (-ick, -ing, -ob)
20. Short Vowel Phonograms (-ug, -ump, -un)
21. Short Vowel Phonograms (-ip, -ap, -ank)
22. Short Vowel Phonograms (-ag, -ut, -est)
23. Short Vowel Phonograms (-ink, -end, -um)
24. Short Vowel Phonograms (-unk, -id, -ash)
25. Short Vowel Phonograms (-amp, -uck, -ed)
26. Short Vowel Phonograms (-ig, -og, -ub)
27. Long Vowel Phonograms (-ake, -ame, -ate)
28. Long Vowel Phonograms (-ine, -ide, -ice)
29. Long Vowel Phonograms (-oke, -old, -one)
30. Long Vowel Phonograms (-ave, -eep, -ole)
31. Long Vowel Phonograms (-ail, -ain, -ay)
32. Long Vowel Phonograms (-ight, -ite, -ipe)
33. Long Vowel Phonograms (-ow, -oe, -oat)
34. Long Vowel Phonograms (-y, -ie, -ire)
35. Long Vowel Phonograms (-ear, -eat, -eel)
36. Other Phonograms (-ool, -oon, -oop)
37. Other Phonograms (-air, -are, -ear)
38. Other Phonograms (-all, -ar, -aw)
39. Other Phonograms (-ook, -ore, -ood)
40. Other Phonograms (-own, -ow, -out)

ANSWERS TO LEARNING ACTIVITY 1

Activity 1

Vowels Controlled by "r"

1. Skill Building Kit #1, Card B-1
2. Skill Building Kit #1, Card B-2
3. Skill Building Kit #1, Card B-3
4. Skill Building Kit #1, Card B-4
5. Skill Building Kit #1, Card B-5
6. Skill Building Kit #1, Card B-6

ANSWER SHEET - ACTIVITY 2

SKILL BUILDING KIT #1

Card A

1. Terms short, checked; introduction to short vowels
2. Terms long, free; introduction to long vowels
3. a
4. e
5. i
6. o
7. u
8. Reinforcement of short and long vowels.
9. y as a vowel and as a consonant.
10. Vowel with silent e
11. Vowel with silent e
12. Reinforcement of short and long vowels.
13. Vowel digraphs
14. Vowel digraphs
15. Vowel digraphs

SKILL BUILDING KIT # 2

Lesson 23. sp, sl, sc, sm as Beginning Blends, 59
24. st, sk, sn, and sw as Beginning Blends, 62
25. br, tr, gr, fr, and dr as Beginning Blends, 65
26. cl, bl, fl, and pl as Beginning Blends, 68
27. m and d as Final Sounds, 70
28. f and g as Final Sounds, 73
29. b and l as Final Sounds, 75
30. Review of f, g, b, l, m, and d as Final Sounds, 78
31. p and r as Final Sounds, 80
32. k and n as Final Sounds, 83
33. s, t, and y as Final Sounds, 86
34. Review of p, r, k, n, s, t, and y as Final Sounds, 90
35. Practice for All Consonants Except Q and X as Beginning and Final Sounds, 92
36. Short A, 94
37. Short E, 97
38. Review of Short A and Short E, 99
39. Short I, 101
40. Short O, 103

ANSWER SHEET - ACTIVITY 2

SKILL BUILDING KIT #3

1. Initial br-tr-gr-fr-dr-cr and Review (s-blends)
2. Initial cl-bl-fl-pl-gl
3. Initial cl-bl-fl-pl-gl
4. Initial cl-bl-fl-pl-gl and Review
5. Initial cl-bl-fl-pl-gl and Review
6. Final m-d
7. Final f-g
8. Final b-l
9. Review Final m-d-f-g-b-l
10. Final p-r
11. Final k-n
12. Final s-t
13. Review Final p-r-k-n-s-t
14. Short Vowel Phonograms (-and, -an, -at)
15. Short Vowel Phonograms (-ent, -en, -ell)
16. Short Vowel Phonograms (-ad, -ack, -et)
17. Short Vowel Phonograms (-in, -ill, -it)
18. Short Vowel Phonograms (-ot, -op, -ock)
19. Short Vowel Phonograms (-ick, -ing, -ob)
20. Short Vowel Phonograms (-ug, -ump, -un)
21. Short Vowel Phonograms (-ip, -ap, -ank)
22. Short Vowel Phonograms (-ag, -ut, -est)
23. Short Vowel Phonograms (-ink, -end, -um)
24. Short Vowel Phonograms (-unk, -id, -ash)
25. Short Vowel Phonograms (-amp, -uck, -ed)
26. Short Vowel Phonograms (-ig, -og, -ub)
27. Long Vowel Phonograms (-ake, -ame, -ate)
28. Long Vowel Phonograms (-ine, -ide, -ice)
29. Long Vowel Phonograms (-oke, -old, -one)
30. Long Vowel Phonograms (-ave, -eep, -ole)

SELF ASSESSMENT

After you have read material in this module and completed the practice activities you are ready for your assessment.

1. Write your answers to the following questions on a separate sheet of paper:

   a. Do you feel that you can adequately inventory material which is available to you and identify the specific skills for which it can best be used?

   b. Do you have a code system so that you can key materials to skills?

   c. Can you select materials from your keyed list to meet the specific learning needs of an individual student?

2. Discuss your comments with the local project director.

3. If you had difficulty with any of the activities in this module, or answered "no" to any of the questions above, seek additional assistance from your project director before proceeding to the next module.

O
R

If you had no difficulty with any of the activities and answered the three questions "yes," proceed to your next learning module.

PACKET II

ANALYSIS

MODULE C

ALTERNATE TEACHING PROCEDURES

INTRODUCTION

In the diagnostic-prescriptive process, the teacher not only collects and analyzes data relative to the learning process and the individual learner, but he/she also must select a teaching procedure which reflects the diagnosis. This task is the same for any teacher, but the diagnostic teacher selects a teaching approach which fits the specific needs and strengths of the learner in question. The diagnostic teacher also chooses plans for instruction which are not influenced by personal preference of either materials or methods. Rather, the selection is made with a thorough understanding of many teaching approaches and a wide variety of materials needed for each. In this module, the participant will review guiding principles which may influence the selection of the teaching plan. Much of the information has been mentioned in other modules, but the topics are detailed in this module as they relate to teaching approaches. Also, the material presented in this module represents only a brief summary of a vast amount of educational theory and research.

Objective

After studying the materials in this module, the participant will be able to select one or more teaching plans which reflect the diagnostic summary of the strengths and weaknesses of a specific student.

Directions

Complete the four learning activities and the accompanying worksheets in this module. Score yourself on the self-assessment sheet on page II-C-20.

Learning Activity 1

Teaching plans reflect correlated principles found in the analytic phase of diagnosis. Planning instruction to correct an error observed in evaluation may not alleviate the learner's problem. Since analysis primarily involved looking for causes of errors, teaching plans must also consider the findings as they relate to the expected success of the learner.

It has been stated that diagnosis will indicate areas of weaknesses which need correction or instruction. This is true, but the teaching approach must also be carefully analyzed. If the diagnostic teacher studied weaknesses as the basis of instruction, the student would be faced with tasks which are failure-oriented. As in the Saber-Tooth Curriculum analogy, the animals weak in swimming were made to take extra classes in the stream, which was very exasperating to rabbits, birds and squirrels.

A rule of thumb for choosing teaching plans is to lead from the areas of strength to reach areas of weakness. For expected success, also apply this rule to content and material. Move from the known to the unknown; the familiar to the unfamiliar.

Complete Worksheet #1 on page II-C-3.

Worksheet #1

Student M. second grade, is still in readiness material as presented by the classroom teacher who uses R basal readers and S mathematics programs. Both are presented to small groups with emphasis on visual learning. Your plan of instruction for helping student M will include which of the following (write your answer on a separate sheet of paper):

_____a. Readiness activities at a slower pace, but using the same book and teaching techniques as the classroom teacher in a smaller group.

_____b. Reading readiness with a book from a similar basal series and with similar teaching techniques. Student M will come to you for her second daily lesson in a smaller group.

_____c. Readiness activities re-designed to include many manipulative objects and kinesthetic activities.

Compare your answer with that given on page II-C-17.

Learning Activity 2

When planning any instructional program, select the approach which will be the most productive for the student. Students have relative strengths and weaknesses related to learning preference. They are able to learn through all modes, though one is usually more efficient than others. Four primary modes of learning are: (1) visual, (2) auditory, (3) tactile-kinesthetic, and (4) multi-sensory.

Visual learning refers to a style which relies heavily upon vision in the learning activities and requires the learner to use other senses minimally. Although many learning situations are basically visually oriented, very few instructional tasks can be developed which do not include visual sensory reactions.

Auditory learning requires the student to primarily use hearing in the learning activity.

Tactile-kinesthetic activities are those designed for the student to use the sense of touch and the movement of muscles.

Multi-sensory situations are designed so that the student must use several senses in order to accomplish a learning task. Very few teaching and learning tasks can be isolated into only one sensory mode.

Unless diagnosis indicates otherwise, teachers should select a predominately visual approach. If no barriers are evident, visual-auditory areas of learning should be emphasized. Both of these approaches have been proven to be beneficial in the majority of learning situations. Even a careful diagnosis may not indicate a clear picture of a learner's needs. The diagnostic teacher then must continue the

evaluative process through trial teaching. If visual-auditory activities are unsuccessful, plans should be altered to focus on tactile - kinesthetic approaches.

Complete Worksheet #2 which follows:

Worksheet #2

Writing your answers on a separate sheet of paper, indicate the predominant learning modes utilized in each of the following suggested activities:

V=Visual, A=Auditory, T-K=Tactile-Kinesthetic, M-S=Multi-Sensory, V-A=Visual/Auditory.

_____a. Arithemetic drill cassette taped for learner to follow oral dictation.

_____b. Reading silently selection from Reader's Digest Skill Builders, level 3.

_____c. Working a crossword puzzle.

_____d. Playing a game of dominoes with three other students.

_____e. Indicating "different" or "alike" when teacher pronounces two words to distinguish beginning consonant sounds.

_____f. Dictating a story to an aide.

_____g. Copying number problems from textbooks to paper and working them.

Compare your answers with those given on page II-C-17.

Learning Activity 3

The teacher must determine if a remedial or initial teaching plan should be implemented. If the skill in question has been taught previously, the teaching plan which failed will not need to be repeated. However, if the skill has never been introduced to the child, it will be helpful to the diagnostic teacher to know of successful teaching designs to use with the student.

Following assessment of strengths and weaknesses, the teacher selects appropriate approaches based on the learning preferences, modes, instructional level, and specific needs.

While choosing teaching strategies, the teacher must attempt to match the instructional system to the learner. This task is neither simple nor is it always accurately determined. Since no system encompasses only one learning mode, the teacher must know which mode is emphasized in order to select the most appropriate method for the student.

No single system for teaching reading is superior for all learners, and several alternative approaches are available.

Whichever approach is emphasized, basal readers have one common feature--the controlled vocabulary. Several unique patterns are developed in basic reading systems: linguistics, phonetics, augmented alphabet, and various combinations of the three.

Each of the approaches may present problems to some children because of the children's individual strengths and weaknesses.

Listed on page II-C-7 are five major approaches to the teaching of reading. Significant features of the teaching strategy have been

analyzed as to learning preference.

1. Controlled Vocabulary Approaches

Basal reading programs utilize controlled vocabularies and progressive skill development. Emphasis varies from phonics, linguistics, augmented alphabet, or look-say to any combination of these features.

a. Phonics emphasizes auditory learning.

b. Linguistics and new-alphabet approaches emphasize visual learning; learners must recognize differences and similarities among written symbols.

c. The look-say approach primarily presents the learner with visual tasks. General shape and length of words are clues for the beginner. Later in this program, auditory and kinesthetic modes are featured.

2. Language-Experience Approach

Primarily, this system features the child's own vocabulary in stories which he first dictates and later writes himself. Skill development is guided by the teacher but does not incorporate identical texts for each child.

a. Dictating or oral reading utilizes auditory learning.

b. Writing a story uses kinesthetic skills.

c. Reading the story uses visual skills.

In summary, this approach utilizes all learning modes.

3. Programmed Approach

The learner progresses through very small individual steps

or tasks, individually, and by immediate responses in a highly structured system of skill development. The material is designed or programmed in such a way that the learner has drill and varied presentations of the same concept or symbol. He moves at his own rate with periodic, individual assessment.

a. Written materials depend upon visual learning with kinesthetic activities included if written responses are required.

b. Programmed materials which are dependent upon equipment have combined learning modes, relying heavily upon auditory and visual skills.

4. Individualized Approach

Designs for individualized reading programs vary considerably. Self-selection of the materials used for both instruction and pleasure reading is a key feature. Skill development is guided by the teacher through individual conferences and flexible skill-need groupings.

a. Independent reading of library books is primarily a visual activity.

b. Skill-building activities can emphasize any learning mode determined by the teacher.

5. Diagnostic-Prescriptive Teaching Approach

Utilizing selected aspects of all approaches and basing instruction on diagnostic data, the teacher prescribes learning experiences which accomodate identified needs, learning modes, and specific goals.

Complete Worksheets #3 and #4 on pages II-C-9 and II-C-10.

Worksheet #3

Writing your answers on a separate sheet of paper, match the predominant learning mode with the general approach to teaching.

General Approach	Predominant Learning Mode
_____a. Controlled Vocabulary (Basal Readers)	1. Visual
_____b. Programmed (with written answers)	2. Multi-sensory
_____c. Language Experience	3. Auditory
_____d. Controlled Vocabulary (Basal Readers) (Linguistics)	4. Kinesthetic
_____e. Individualized (Library Books Base)	

Compare your answers with those given on page II-C-17.

Worksheet #4

STUDENT A AGE 10

Objective: Using primarily a visual approach, the learner will increase her sight vocabulary after instruction and practice with linguistic materials beginning on the readiness level and limiting visual clues to printed words.

Note: Write your answers on a separate sheet of paper.

1. List the characteristics of materials which might be used with Student A to correspond with the selected teaching approach.

2. Which of the following activities would be appropriate to include in Student A's prescription?

   ___a. Worksheet on vowel sounds in pre-primer Dolch basic word list.

   ___b. Word Worms: Write one word on each segment of the worm if the word is a member of the worm's word family. (_an, _ope, etc.).

   ___c. Tachistoscope word drill using words from reading vocabulary.

3. Which of the materials listed below would be appropriate to use with Student A, in keeping with the stated teaching approach?

   ___a. Sullivan story books.

   ___b. Taped program on "wh" sound.

   ___c. Dr. Spello workbook lesson on short vowels.

   ___d. Book and taped story.

Compare your answers with those given on page II-C-18.

Learning Activity 4

Since mathematics can be envisioned as another symbolic language, similar considerations may be made for selecting teaching strategies for reading or for mathematics.

A diagnostic mathematics teacher will have the same tasks as the diagnostic reading teacher. First, the teacher must understand the child and the subject matter. Second, the teacher must determine the levels at which a child is successful. In mathematics, the teacher must identify the specific operations which a child can successfully compute. Third, the teacher must attempt to determine the strongest learning mode of the student in mathematics. Not only must the teacher know the level and operations the student can successfully undertake, but he must also be aware of the many abstract concepts involved in mathematics. The time and effort needed to go back to readiness activities may provide the essential understandings for future growth. As in other areas of skill development, the most successful level in mathematics is the concrete one.

On the next pages are lists of characteristics of children who have weaknesses in mathematics. These symptoms are categorized in areas of auditory and visual modes of learning. By comparing these clues with other diagnostic data, the teacher may be able to plan remedial instruction.

Read the supportive information given on pages II-C-12 and II-C-13. Complete Worksheet #5 on page II-C-14 and Worksheet #6 on pages II-C-15 and II-C-16.

SUPPORTIVE INFORMATION

Visual Disorders in Arithmetic

1. The student may not be able to discriminate differences or similarities in size and shape.
2. He may exhibit discrimination difficulties such as writing 3 for 8 or 2 for 5.
3. He may not be able to learn sets or groupings.
4. The student may not be able to accurately judge spatial relationships that deal with distance and quantity.
5. He may have difficulty in learning to tell time.
6. The student may ruin materials, books, garments, etc., because he tries to force them into drawers or spaces that are too small. He may have difficulty in relating the size of an object to the appropriate container.
7. He may exhibit problems with the alignment and arrangement of numerals.
8. He may overpour his glass, have difficulty lining up buttons, and put too much food on his fork.
9. The student may have problems with body image as indicated by the "Draw-A-Man" Test.
10. He may exhibit a poor sense of direction, getting lost easily, not being able to find different places in the school or neighborhood.
11. He may have difficulty with historical sequence and with geography that deals with maps and globes.
12. He may have problems with right-left orientation and placement.

13. The student may have difficulty with relating himself to an object in space and appear awkward and clumsy in his attempt to perform a physical task.
14. He may exhibit reversals and write E for 3, or inversions and write 6 for 9.
15. He may not be able to write numerals.

Auditory Disorders in Arithmetic[1]

1. The student may not be able to retain an auditory sequence of numerals.
2. He may have difficulty with looking at a series of numerals while counting aloud.
3. The student may exhibit difficulties with story problems which require him to assimilate and hold a great deal of information in his mind.
4. He may not be able to cope with rapid oral drills.
5. He may not be able to associate a numeral with its auditory referent.

[1]Mann, Phillip H. and Patricia Suiter. Handbook in Diagnostic Teaching: A Learning Disabilities Approach. Boston: Allyn and Bacon, Inc., 1974, pp. 103 and 104.

Worksheet #5

STUDENT W AGE 11; LEVEL - 2ND GRADE

Objectives: Using primarily a tactile, kinesthetic approach, the learner will improve computation accuracy with two and three digit addition and subtraction, including re-grouping operations.

Note: Write your answers on a separate sheet of paper.

1. List the characteristics of materials which might be used with Student W to correspond with the selected teaching approach.

2. Which of the following activities would be appropriate to include in Student W's prescription?

   ____a. Worksheet of 2-digit subtraction and addition facts without regrouping.

   ____b. Taped arithmetic drill.

   ____c. Cuisenaire - rod exercises.

3. Which of the materials listed below would be appropriate to use with Student W in keeping with the stated approach?

   ____a. Imperial tapes on subtraction and addition.

   ____b. Worksheets and blocks to check work.

   ____c. Geo-boards.

Compare your answers with those given on page II-C-18.

Worksheet #6

Case Study (excerpts)

STUDENT A AGE 8

1. Could not learn nursery rhymes.
2. Unable to get messages straight over the telephone.
3. Forgot spoken instructions.
4. Very unsuccessful in phonics activities.
5. Could not distinguish between single phoneme difference in spoken word (cat, cap).
6. Passed reading readiness with ease by matching shapes, determining word meaning from pictures, etc. (visual tasks).
7. During second half of grade one, arithmetic became easy.

* *

1. Area of Strength _____
2. Area of Weakness _____
3. Instruction should be planned for Student A which emphasizes _____

_____

STUDENT B AGE 8

1. Learned to say alphabet in sequence easily.
2. Learned poems and nursery rhymes easily.
3. Remembered series of digits or phone numbers easily.
4. Remembered verbal instructions well.
5. Quickly detected differences in spoken words (single phonemes, etc.)
6. Had difficulty with puzzles.
7. Could not copy forms and designs.

8. Had trouble doing block designs.

9. Could not reproduce patterns with beads.

10. Did not remember sight words.

* *

1. Area of Strength _____

2. Area of Weakness _____

3. For instruction, Diane should emphasize _____ learning.

Compare your answers with those given on page II-C-19.

ANSWERS FOR LEARNING ACTIVITIES

Learning Activity 1

Worksheet #1

A and B will give Student M more of the same materials and techniques which she has had for one and a half years with little success. C offers her a new learning approach.

Worksheet #2

Primary learning style emphasized in the teaching activities:

a. Visual-Auditory

b. Visual

c. Multi-sensory

d. Multi-sensory

e. Auditory

f. Auditory

g. Visual (and kinesthetic)

Worksheet #3

These are the primary learning modes required in the approach to reading listed. In almost every case, some aspect of the program will incorporate activities in another mode, but the list in this exercise notes only the primary sensory response.

a. 3 - (auditory/phonics)

b. 1 - (visual/programmed)

c. 2 - (Multi-sensory/language/total Experience Program)

d. 1 - (visual/linguistics)

e. 2 - (Multi-sensory in the total individualized program)

ANSWERS FOR LEARNING ACTIVITIES

Worksheet #4

1. Materials listed should be:
   a. On readiness or pre-primer level
   b. Linguistically oriented
   c. Focus on sight vocabulary building

2. Activities b and c would be appropriate because the material fits the objective and emphasizes visual learning style.
3. Only a would be suitable for Student A because the other materials do not relate to the linguistics emphasis in the learning objective.

Worksheet #5

1. Materials selected should be:
   a. On 2nd grade level
   b. Manipulative or kinesthetic emphasis.
   c. Focus on addition and subtraction operations.

2. Only activity c fits kinesthetic learning emphasis and the skill objectives.
3. a. Would be appropriate if the selected tapes focus on the specified skills and require tactile-kinesthetic responses.
   b. could be used if the worksheets are designed to meet the objective.
   c. could be prescribed if accompanied by tasks which involve the specified skills.

ANSWERS FOR LEARNING ACTIVITIES

Worksheet #6

Student A failed many tasks involving auditory learning, but used his skill in visual tasks to great advantage in arithmetic. Plans for instruction in reading should emphasize his strength in visual processing.

Student B performs well on tasks requiring auditory abilities while he had trouble with nearly all activities related to visual perception and memory. Instructional plans will need to begin with auditory emphasis to insure success.

Self-Assessment

After you have completed material in this module, you are ready for your self-assessment. Write your answers on a separate sheet of paper.

1. Answer the following questions:
   a. Do you feel that you can determine the primary learning mode required in various learning activities or tasks designed for learners? Yes ___ No ___
   b. Do you feel that you can utilize diagnostic data to determine alternative teaching approaches needed for a specific skill or need? Yes ___ No ___
2. Discuss your comments with your supervisor.
3. If you had difficulty with any of the activities in this module, or answered "no" to any of the questions above, seek additional assistance from your supervisor.

   OR

   If you had no difficulty with any of the activities in this module, and answered "yes" to the two questions above, proceed to your next learning module.

PACKET III

PRESCRIPTIVE TEACHING

MODULE A-1

WRITING PERFORMANCE OBJECTIVES

INTRODUCTION TO PACKET III

Offering each child in a classroom the specific instruction he needs exactly when he needs it may lie beyond the potential of any teacher. A continuing effort should be made, however, to approach the ultimate teaching-learning process by tailoring instructional activities to each student as accurately as possible. Accurately tailoring teaching-learning activities must be approached on an organized, sequential basis.

Using the diagnostic-prescriptive approach should allow most teachers to approach a degree of sophistication in the instructional process necessary to meet individual learning needs of students. The prescriptive process is a procedure designed to put the analysis of students' needs into action. The prescriptive process can be compared quite accurately to the treatment provided by a physician. A patient exhibiting one or more symptons of an illness, such as a fever, chills, or pain, may elect to visit a doctor in an effort first to identify the illness, and then to obtain the appropriate treatment to alleviate it. To a high degree, the diagnostic-prescriptive process follows the medical approach.

Using the data available from the diagnostic process, individual prescriptions for a student should be written. Procedures, forms, and techniques for writing individual prescriptions will vary considerably from school system to school system and from teacher to teacher. The

diversity in procedures for writing prescriptions should not be considered bad or an indication that the ultimate goal has not been reached.

This packet will outline four specific elements that probably should be included in a prescription regardless of its form.

1. Expected student behavior, generally stated as an objective.
2. Situation under which the learning is to occur
   a. Persons to be involved
   b. Materials and equipment needed
   c. Time allocation
   d. Location for learning activities
3. Teaching procedures
4. Evaluation procedure (pupil)

Activities in this package will be related to the elements listed above.

A teacher using the student-centered approach in writing behavioral objectives will provide a sense of direction and a degree of understanding so that the student will be able to complete the objective in the manner desired by the the teacher. The degree of effectiveness that a teacher can attain in the teaching-learning process is directly related to the understanding of the activity on the part of both teacher and student.

INTRODUCTION TO MODULE A-1

Performance objectives are classified into three domains: cognitive, affective, and psychomotor. The cognitive domain refers to those behaviors which place primary emphasis on intellectual skills, such as recall, understanding, application, analysis, synthesis, and evaluation. The majority of instructional objectives are written in this domain because it includes most of the activities commonly associated with learning.

The development of affective or attitudinal objectives is difficult to understand and more difficult to evaluate. A major reason for the complexity is that the data used to formulate attitudes may originate from a variety of sources. Attitudes can be nutured in, or arise out of, contacts with parents, teachers, the community or the environment in which the student has lived. Learning and attitudinal development are on-going processes although the participant may be unaware that he is learning, and the person identified with such learning may have no intention of teaching or producing a behavioral change in the unaware recipient. As a result, learning in the affective domain is not readily observable or measurable, in many cases, because it is associated with emotions, feelings, and a system of complex, internal processes.

Behavioral objectives written in the psychomotor domain involve activities that have to do with the development and refinement of motor skills, neuro-muscular activities, and physical and manual

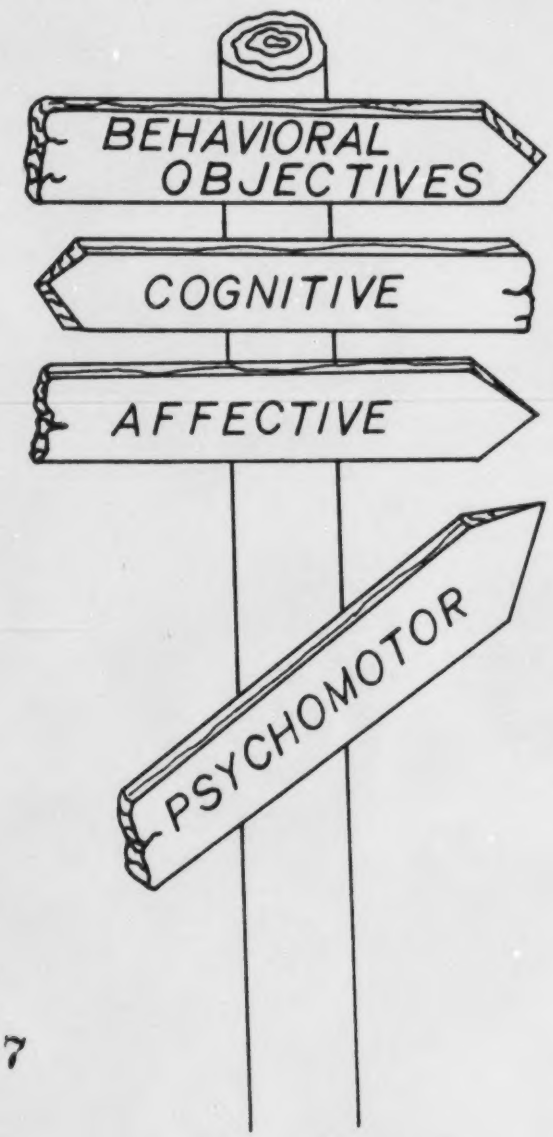
dexterity. In Title I programs it is imperative that psychomotor needs be identified and considered in developing learning objectives.

Objective

After completing the activities in this module, the participant will be able to develop performance-stated student objectives in the cognitive, affective, and psychomotor domains. The effectiveness of the objectives will be measured in terms of their utility as components in a student's instructional prescription.

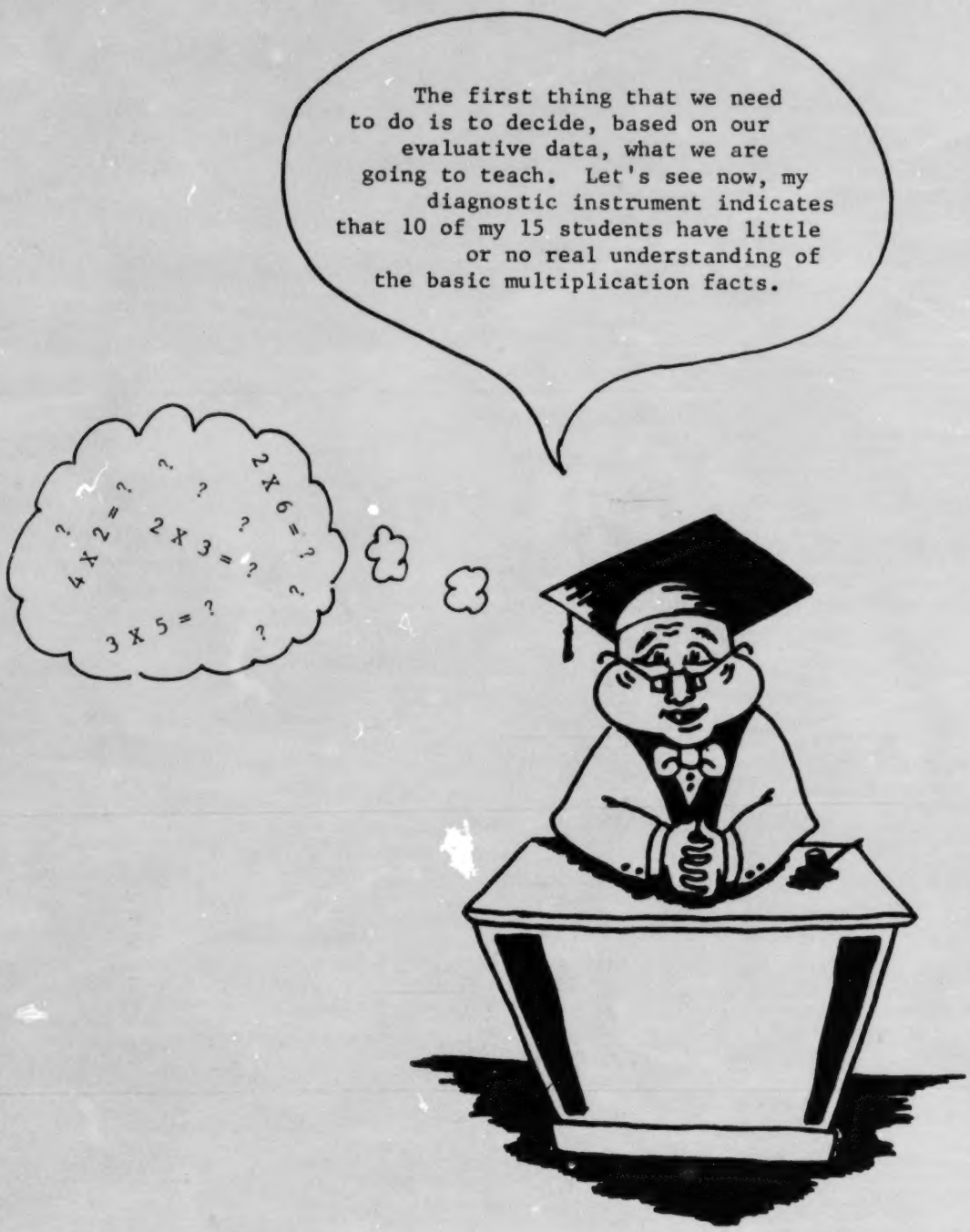
Directions

Read the supportive data and proceed to the learning activities. Work through them and record your answers on separate sheets of paper.



S U P P O R T A T I V E I N F O R M A T I O N

I think we have had just about enough of this unnecessary rhetoric, now I am going to show you how to write a behavioral objective.


The first thing that we need to do is to decide, based on our evaluative data, what we are going to teach. Let's see now, my diagnostic instrument indicates that 10 of my 15 students have little or no real understanding of the basic multiplication facts.
4 X 2 = ?
2 X 3 = ?
2 X 6 = ?
3 X 5 = ?

For these 10 students my educational goal is . . .

TO BE ABLE TO UNDERSTAND

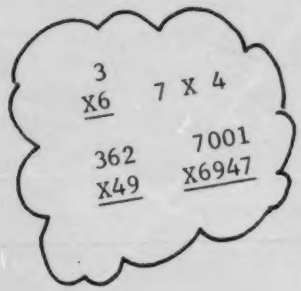
PROBLEMS INVOLVING

THE BASIC

MULTIPLICATION FACTS

Hmm . . . Understand the basic multiplication facts? . . . Understand??? . . . How can you ever be sure that a child really understands?

That's too broad a goal, anyway . . . What do I really want them to know about multiplication facts? I guess I'd better administer my evaluation instrument to see how much they already know about multiplication.



Hmm . . . These ten (10) students don't know any multiplication facts. Let's see now, I guess they had better start off by learning what multiplication is all about.

Hmm . . . More specifically, they need to know how to write the basic multiplication facts involving the multiplication of two (2) times other single digit integers.

. . . Now how can I write this as a behavioral objective?

2 X 4 = ?

2 X 7 = ?

3 X 6 = ?

4 X 3 = ?

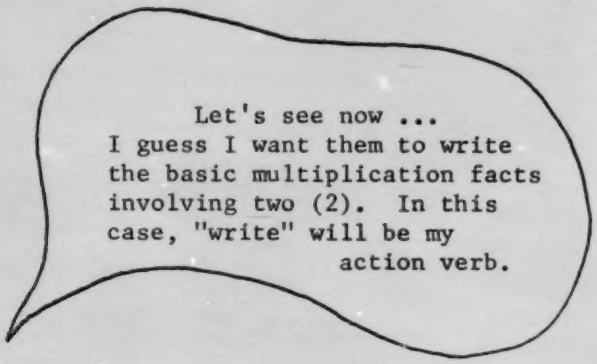
A BEHAVIORAL OBJECTIVE SHOULD INCLUDE:
WHO 1. A description of the learner should be included. Is the objective giving direction to ... a pupil ... a group ... or the class?

In this case the learner will be ... the ten (10) students identified as having difficulty with basic multiplication facts involving two's (2's).

A BEHAVIORAL OBJECTIVE SHOULD INCLUDE:
WHAT IS TO BE LEARNED 2. A description of the specific concept, skill, or activity to be learned or mastered should be included. The description should be stated in precise terms that will be readily understood by the learner.

I want the ten (10) students to be able to write the basic multiplication facts involving the multiplier or multiplicand two (2).

A BEHAVIORAL OBJECTIVE SHOULD INCLUDE:
ACTION VERBS 3. The action verb should convey the type of learning that is expected upon completion of the objective.


Let's see now ...
I guess I want them to write the basic multiplication facts involving two (2). In this case, "write" will be my action verb.

SOME ACTION VERBS IN THE COGNITIVE DOMAIN

Simple Mental Process	Intermediate Mental Process	Complex Mental Process
Count	Apply	Design
Recognize	Predict	Develop
Repeat	Calculate	Plan
Recall	Classify	Organize
Recite	Demonstrate	Create
List	Group	Produce
Name	Solve	Critique
Draw	Employ	Grade
Read	Examine	Rate
Write	Analyze	Judge
State	Explain	Evaluate
Identify	Relate	Recommend
Discuss	Summarize	
Compare		
Contrast		
Describe		

SOME ACTION VERBS IN THE AFFECTIVE DOMAIN

Accept	Value	Receive
Attempt	Cooperate	Participate
Argue	Criticize	Question
Challenge	Interest	Share
Consult	Investiage	Suppose
Aware	Join	Volunteer
Respond		

SOME ACTION VERBS IN THE PSYCHOMOTOR DOMAIN

Bend	Hop	Run
Catch	Jump	Skip
Climb	Kick	Step
Grab	Pull	Stretch
Hit	Rush	Throw
		Walk

A BEHAVIORAL OBJECTIVE SHOULD INCLUDE:
WITH WHAT AIDS OR LIMITATIONS 4. What aids may the student use as he endeavors to master the specific concept, skill, or activity or what restrictions will be imposed?

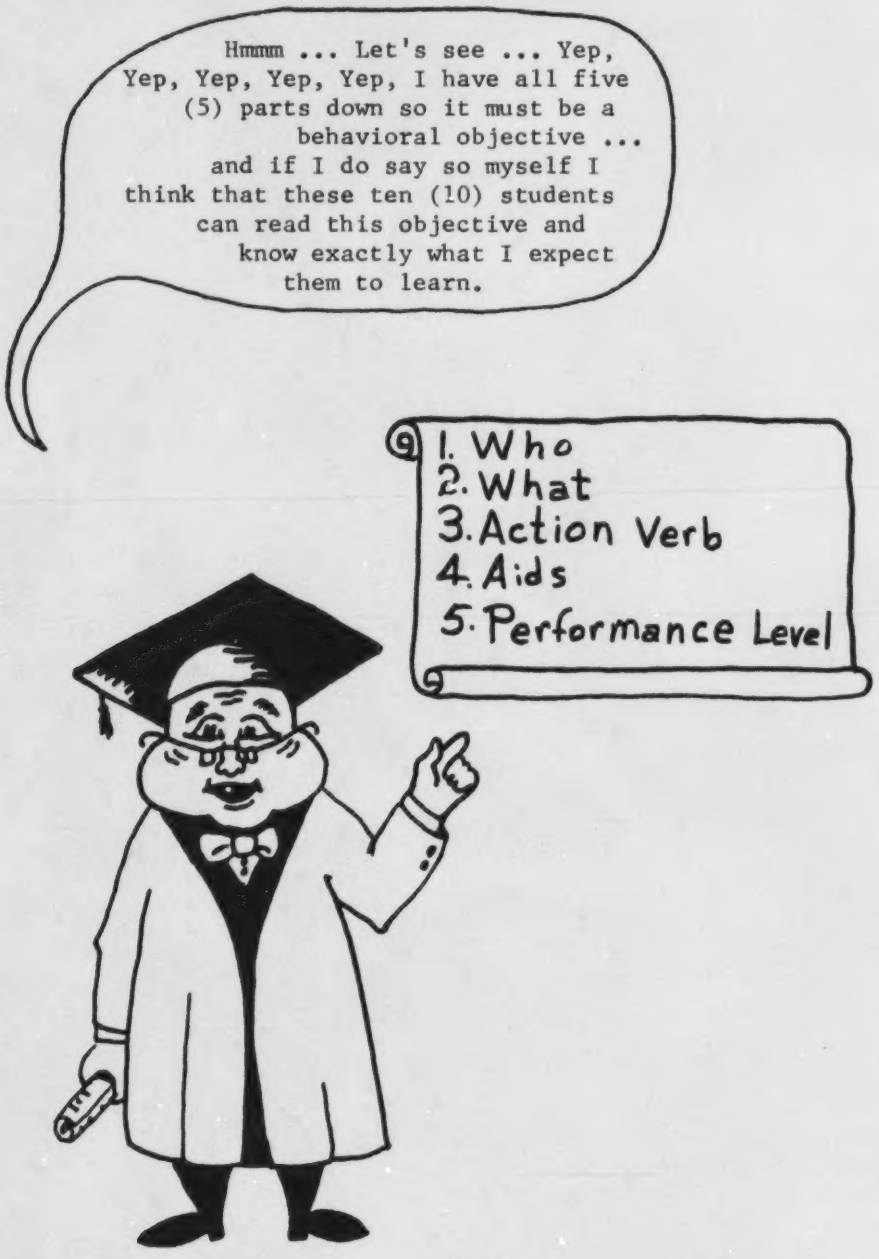
Since we have a new set of multiplication flash cards, I will let them use them in groups to aid in learning the multiplication facts.

A BEHAVIORAL OBJECTIVE SHOULD INCLUDE:
HOW MUCH MUST BE LEARNED 5. A statement of the minimum level of performance expected of the learner should be included. A performance level may specify a time limit (degree of speed) and/or a minimum number of correct responses (degree of accuracy). Remember! Performance level is the standard of excellence that is expected.

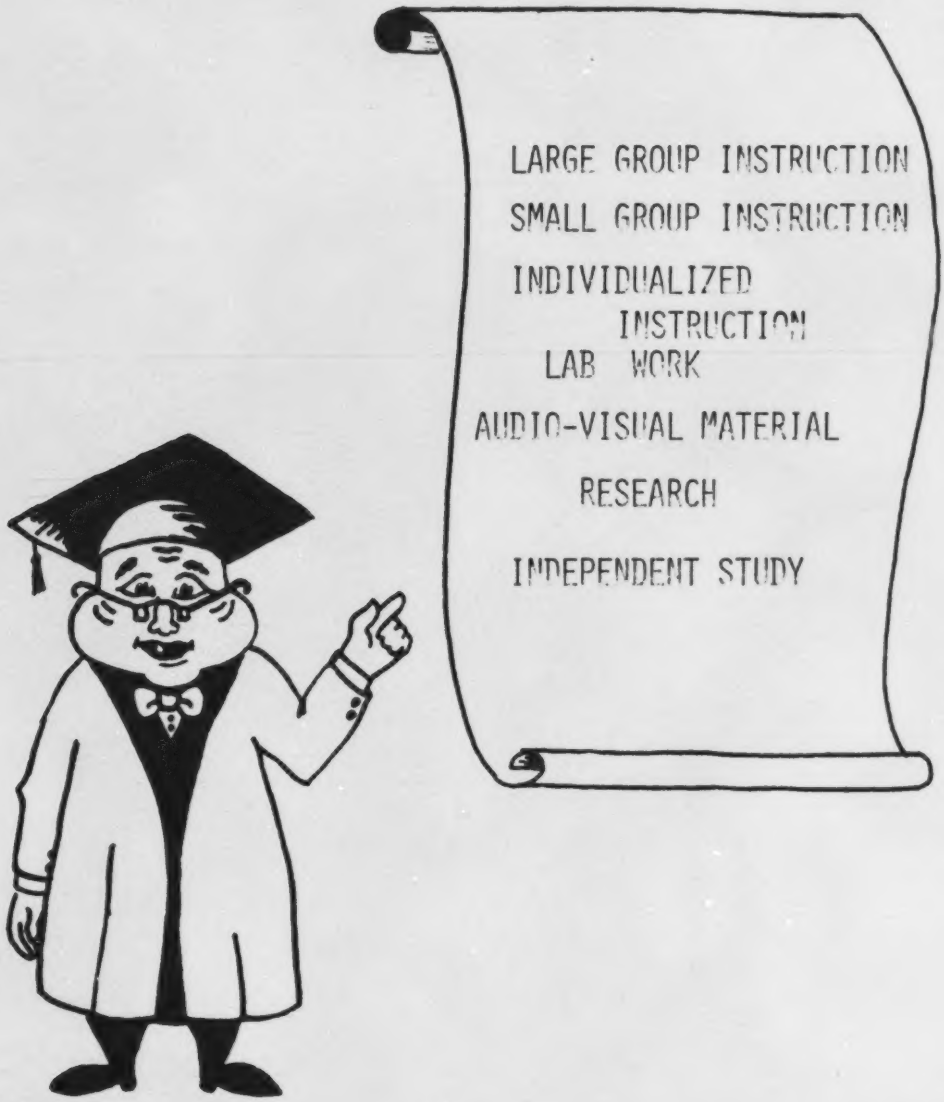
I will expect each of the ten (10) students to be able to correctly write the answers to at least eight of the ten basic multiplication facts using two (2) as the multiplier or multiplicand. And in this case, I don't need to set a time limit for them. (Degree of speed)

A BEHAVIORAL OBJECTIVE INCLUDES:
1. WHO -- A description of the learner 2. WHAT IS TO BE LEARNED -- A description of the specific concept, skill, or activity. 3. ACTION VERBS -- The action verb should convey the type of learning that is expected upon completion of the objective. 4. WITH WHAT AIDS OR LIMITATIONS -- What aids may the student use as he endeavors to master the specific concept, skill, or activity or what restrictions will be imposed? 5. HOW MUCH MUST BE LEARNED -- A statement of the minimum level of performance expected of the learner

Using flash cards and other teaching aids each student in the 9:00 Title I Math Class will be able to correctly write the answer to 8 of 10 problems involving basic multiplication facts with two (2) as the multiplier and multiplicand.


Hmmm ... Let's see ... Yep, Yep, Yep, Yep, Yep, I have all five (5) parts down so it must be a behavioral objective ... and if I do say so myself I think that these ten (10) students can read this objective and know exactly what I expect them to learn.
1. Who
2. What
3. Action Verb
4. Aids
5. Performance Level

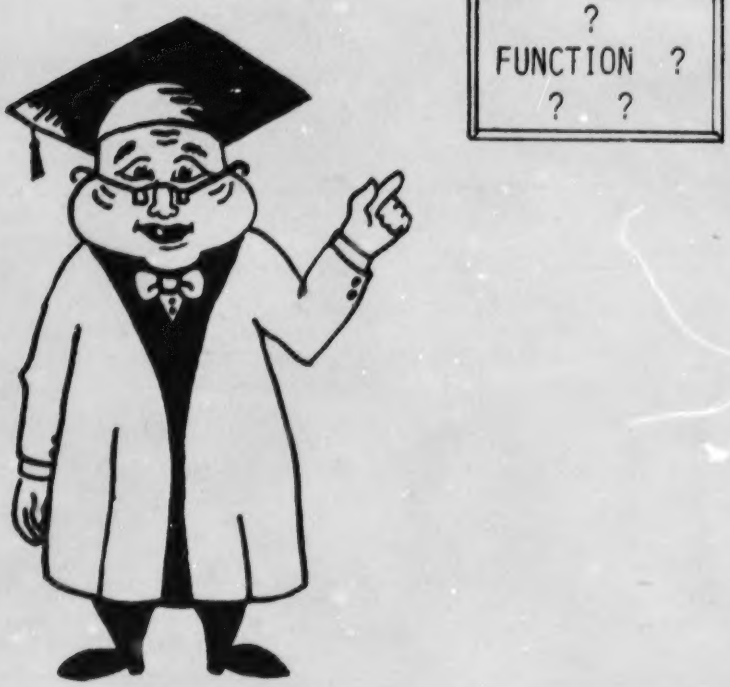
Now that I have a behavioral objective,
what activities can I
include to help these students
learn the basic multiplication facts
with two (2) as the
multiplier or multiplicand.



After all students have learned the basic multiplication facts with two (2) as the multiplier or multiplicand. . .

You know that objective might need to be expanded or another one included that would require the students to use their knowledge of multiplication a little more.

Hmm . . . What do you think?



Learning Activity 1

Critique the following objectives using the points listed or a similar set suggested by the supervisor.

Objective 1 - To understand the theory of multiplication.

Objective 2 - After completing a lesson using a multi-media presentation, the fourth grade math students will fully appreciate multiplication as a quick means of adding, by scoring at least 75% on the post test.

Objective 3 - After completing a unit on basic sight words using bingo and related sight word games, the Title I third graders will be able to improve their performance on the Dolch graded word list by reading at least ten percent more words than on the pre test.

a. Who is to learn?_____

b. What is to be learned?_____

c. Action verb?_____

d. With what aids or limitations?_____

e. How much must be learned?_____

f. What mental process is involved?_____

(Turn to Page III-A1-25 to check your answers.)

Learning Activity 2

a. Write three (3) or four (4) cognitive objectives related to the subject you are teaching. Include objectives requiring simple mental processes (knowledge) through complex mental processes (evaluation).

b. Choose a partner and critique your objectives in terms of the points required of behavioral objectives and given in Learning Activity 1.

c. Use the following outline to determine the effectiveness of your objectives in providing students with the information necessary to complete a learning task.

1. Is the language suitable for the age level?
2. What mental process is involved (knowledge, comprehension, etc.)?
3. Does the objective include all five steps as set forth in the supportive information section of this module or in a comparable set of steps?
4. Is the evaluation adequate?
5. Is the objective a long-term or a short-term objective?

Note: Give your supervisor revised copies of your objectives for evaluation.

Learning Activity 3

Critique the following affective objectives using the criteria (1) who, (2) what is to be learned, (3) action verb, (4) with what aids or limitations, (5) how much is to be learned.

Objective 1 - All Title I fifth grade reading students will appreciate the difference between homonyms and antonyms.

Objective 2 - After participating in the Title I reading class for one semester, at least 30 percent of the Title I sixth grade students will demonstrate an increased interest in reading by checking more books and periodicals of their choice out of the library for personal reading.

Write your responses on a separate sheet of paper. Turn to pages III-A1-25 and III-A1-26 to check your answers.

Learning Activity 4

a. Write three (3) objectives in the affective domain. The format used for writing objectives in the cognitive domain should be followed.

b. Choose a partner and use the criteria in Learning Activity 3 to critique your objectives in terms of the various points required of behavioral objectives.

c. Use the following outline to determine the effectiveness of your objectives in providing your students with the desired information.

   1. Is the language suitable for the age level?
   2. What attitudinal process is involved (receiving, responding, valuing, organizing, characterizing)?
   3. Does the objective include all five steps as set forth in the supportive information section of this module or in a comparable set of steps?
   4. Is the evaluation adequate?
   5. Is the objective a long-term or a short-term objective?

   Note: Give your supervisor revised copies of your objectives.

Learning Activity 5

Critique the following objectives using the five point procedure including (1) who, (2) what is to be learned, (3) action verb, (4) with what aids or limitations, (5) how much is to be learned.

Objective 1 - After completing a unit in elementary geometry, the sixth grade Title I students will complete a project in curve stitching. The project will be evaluated in terms of accuracy in laying out the design and stitching it.

Objective 2 - After completing basic readiness materials, second semester Title I first graders will be able to perform left-right coordinated movements with better than 90 percent accuracy.

Write your responses on a separate sheet of paper. Turn to Page III-A1-26 to check your answers.

Learning Activity 6

a. Write the psychomotor objectives.

b. Choose a partner and use the steps outlined in Learning Activity 5 to critique your objectives in terms of the various points required of behavioral objectives.

c. Use the following outline to determine the effectiveness of your objectives in providing your students with the desired information.

1. Is the language suitable for the age level?
2. Does the objective include all five steps as set forth in the supportive information section of this module or in a comparable set of steps?
3. Is the evaluation adequate.
4. Is the objective a long-term or a short-term objective?

Note: Give your supervisor revised copies of your objectives for evaluation.

ANSWERS FOR LEARNING ACTIVITIES

III-A1

Learning Activity 1

1. Objective 1
   a. Who: (none given)
   b. What is to be learned: theory of multiplication
   c. Action verb: understand.
   d. With what aids or limitations: (none given)
   e. How much must be learned: (none given)
   f. What mental process is involved: upper level

2. Objective 2
   a. Fourth grade math students
   b. ? (Multiplication)
   c. Appreciate
   d. ? None given.
   e. 75 percent of list
   f. ? No clear level

3. Objective 3
   a. Title I third graders
   b. Dolch graded word list
   c. Improve performance
   d. Dolch graded word list
   e. 10 percent improvement over pre-test
   f. Lower level

Learning Activity 2

Your answers to this activity should be checked by your supervisor.

Learning Activity 3

1. Objective 1
   a. Who: Fifth grade reading students
   b. What is to be learned: Difference between antonyms and homonyms
   c. Action verb - Appreciate
   d. With what aids or limitations: (None given)
   e. How much must be learned: (None given)
   f. What mental process is involved: lower level

2. Objective 2
   a. Title I - sixth grade students
   b. Reading
   c. Interest
   d. Books, periodicals
   e. 30 percent increased check-out frequency
   f. Upper level

Learning Activity 4

All answers will vary. Check with your supervisor.

Learning Activity 5

1. Objective 1
   a. Title I - sixth grade students
   b. Curve stitching
   c. Complete a project
   d. Not given
   e. Accuracy in laying out the design
   f. Lower level

2. Objective 2
   a. Title I - first grade students
   b. Left-right coordinated movements
   c. Perform
   d. Not given
   e. 90 percent accuracy
   f. Lower level

Learning Activity 6

All answers will vary. Check with your supervisor to see if you have successfully written this objective.

SELF ASSESSMENT

Write your answers on a separate sheet of paper.

1. Using the 5 point plan suggested in this module or a similar format suggested by your supervisor, can you write an objective in the affective domain? YES___NO___
2. Can you write objectives requiring simple mental actions and ones requiring a more complex mental process? YES___NO___
3. Using the 5 point plan suggested in this part or a similar format suggested by your supervisor, can you write an objective in the affective domain? YES___NO___
4. Can you write objectives requiring simple mental actions and ones requiring a more complex mental process? YES___NO___
5. Using the 5 point plan suggested in this part or a similar format suggested by your supervisor, can you write an objective in the psychomotor domain? YES___NO___
6. Can you write objectives requiring simple mental actions and ones requiring a more complex mental process? YES___NO___

If you were not able to answer these questions in the affirmative, ask your supervisor to provide you with additional help.

PACKET III

PRESCRIPTIVE TEACHING

MODULE A-2

THE LEARNING SITUATION

INTRODUCTION

Learning as a mental process is extremely complex in terms of both identification and measurement. Learning may be defined as a behavioral change in an individual, resulting from experiences, and occurring in such a manner that the behavior or performance is observable and measureable. In this context, learning is theoretically based on a series of stimuli which influence the mental patterns of an individual. Thus, the learning situation greatly affects the amount of learning which may occur.

Many factors influence the ease or the complexity of the learning activity. Among those factors are the arrangement of students in an efficient, effective manner for instruction. Grouping of students may dramatically affect learning, for example, if students who perfer group-related activities are constantly given programmed instruction to be completed independently in a carrel. The resultant learning from the activity may be below par. The ineffectiveness of this procedure may be as much related to the grouping arrangement as to the material. The Title I teacher must pay particular attention to the learning preferences of students and to the identified cognitive deficiencies.

The uniqueness of the Title I student requires that special attention be paid to the organization of the total teaching-learning process. If the child is not succeeding in the regular classroom, more time in the same type program with similar learning activities will generally not produce significant gains. Regular classroom instruction should be

analyzed to determine the factors which have hampered effective learning. Special emphasis should be given to the type of instructional activities used, the time allowed for the activities, the classroom organization, and the utilization of materials and equipment.

Objective

After completing the module related to the learning situations, the participant will be able to develop a classroom organization which will facilitate the grouping of students, utilization of materials and equipment, and utilization of instructional time.

Directions

Read the supportive information related to the learning situation and proceed to the learning activities which will provide an opportunity to formulate an instructional program for a group of students. The participants should organize themselves into groups of four to eight persons depending on the number of personnel in the workshop.

EXAMPLES AND SUPPORTIVE INFORMATION

Grouping Students for Effective Learning

Non-gradedness, multi-age grouping, teachability grouping, and small-group learning are topics with many different definitions. Although much of the terminology appears to be new, the concept is essentially concerned with the age-old issue -- how to group students for effective learning, Basically, Title I students may be grouped into large groups (15 students) or small groups (4 to 8 students) for instruction, or they may be taught. These broad categories for all

practical purposes are worthless unless they provide guidelines for activities. For the purpose of this module, the following categories will be used: small groups, skill groups, discussion groups, helping and sharing groups, and gaming and simulation groups.

Although this breakdown could be arranged many ways, it is primarily designed to assist teachers in developing activities related to specific needs.

Small-group instruction is a means of providing students with learning activities in a highly socialized environment. Capitalizing on the learning preferences of students, the Title I teacher may create an effective learning situation by using the small-group approach. Small-group instruction provided the following advantages:

1. Small groups enable the teacher to deal more flexibly with students.
2. Small groups provide a supportive climate for learning.
3. Small groups allow a student to receive reinforcement and feedback about his performance.
4. Small groups provide social motivation for learning.

The diagnostic-prescriptive approach recommended for Title I students is particularly suited for use in various small-grouping arrangements. The restrictions placed on Title I group size virtually guarantee that any grouping arrangement would tend to fall in a small group category. Groups may be organized for a variety of instructional activities. Students may be grouped for discussion, skills development, helping and sharing, and gaming and simulation.

The discussion group is designed to aid students in learning to communicate, in sharing ideas, and in gaining insights. The following

rules should be used in discussion groups. Each student should:

1. Know the meaning of the question they are discussing
2. Take turns speaking
3. Listen attentively
4. Stay on the topic
5. Summarize what has been said

The skills-oriented group is probably the most frequently used in this category. The name of the group indicates that it will be composed of students having similar learning needs. The diagnostic process provides the teacher with data for accurate skills grouping. The skills group may be combined with other grouping categories to produce added gains. For example, students with a deficiency in a math skill may be placed in a skills group related to the math deficiency and a discussion group used to teach the concept.

Helping and sharing groups are designed to provide for tutoring by students or for cooperative problem solving by students. The helping and sharing groups require careful organization by the teacher because poorly organized groups may detract from the learning task. The teacher should evaluate the sociometric make-up of the group before assigning group leaders or before placing students with other students for tutoring.

A final grouping arrangement, gaming and simulation, proves to be very effective in most Title I classes. This success is primarily due to the fact that the Title I teacher uses materials and equipment which are not accessible to the regular classroom teacher. Many students profit from this grouping arrangement because it provides for multi-sensory experiences.

ORGANIZATIONAL STRATEGIES

Proper planning of Title I classroom activities is one key to an effective learning process. A well-organized teaching-learning process utilizes the available material, equipment, and time allocated and capitalizes on the inert environmental potential of the classroom. After analyzing the learning needs and learning characteristics of a student, the teacher should select and use materials that are consistent with these needs and characteristics. The student who demonstrates an interest in manipulatives can probably profit from learning activities centered around materials requiring some manual dexterity. Activities which involve two or more senses generally produce a higher degree of cognitive learning. The use of audio-visuals allows for semi-concrete learning experiences and may provide a motivational stimulus for the student to become involved in other type learning activities.

The Title I classroom environment is a major factor in providing for an effective, individualized, instructional program. In creating and managing the learning environment, the teacher should consider the learning needs of the child, his learning characteristics, the amount of time required to complete the activity, possible constraints of the facility, the available materials, and the most effective teaching style of the instructor.

Learning Activity 1

Read the case study which follows and discuss it with your group in terms of: (1) grouping arrangements (2) classroom organization (3) types of materials and equipment needed and how it will be used

(4) and any other factor effecting the learning situation in their school.

Select a reporter to share your findings with the large group.

CASE STUDY

Miss Jones is a Title I math teacher in Central Elementary School. She noted much diversity in ability and a difference in motivational levels of her students. As a result, she has not been successful in teaching the understanding of basic geometric figures. In her search for better methods and a better organizational plan, the students were given a test to determine how they learned best. The test revealed that approximately five students preferred to learn in groups with the teacher's assistance. Approximately five students showed a preference for learning in small groups with teacher assistance, and three students preferred to learn individually.

Further research showed that one of the students had scored above average on the mental ability test and showed leadership abilities as determined by the learning-style survey. Another student scored significantly below average with no leadership abilities. A check of school records indicated that these two students are having difficulties with other subjects as well as mathematics, and a look at their personal data indicates that their home environment is most conducive to motivation and learning.

Learning Activity 2

Working in your same group, develop and write a plan that will be applicable to the case study in Learning Activity 1.

Identify a member to report to the total group.

SELF ASSESSMENT

Answer these questions on a separate sheet of paper.

1. After consideration of the information given, do you feel that you can organize your class into groups most conducive for learning?

   YES___NO___

2. Do you feel you can develop an organizational strategy to utilize the instructional time, available materials and equipment, and classroom environment to the best advantages of the student?

   YES___NO___

3. Do you have any concerns related to any part of the section dealing with learning situations?

   YES___NO___

If you were not able to respond to each question affirmatively, ask your supervisor to provide you with additional information.

PACKET III

PRESCRIPTIVE TEACHING

MODULE A-3

TEACHING-LEARNING PROCEDURES

INTRODUCTION

The heart of the diagnostic-prescriptive process is the teacher. The teacher and the teaching process are both keys for effective learning. An organized procedure should be established to assure that each student has an opportunity to learn.

The teaching process has sometimes been minimized in favor of a "canned" program purported to produce fantastic gains. However, if an instructional program is to be effective, it must meet the needs of the students and fit the teaching style of the teacher.

Organizing the instructional procedure requires at least two components: An understanding of the student's unique learning characteristics and a plan that will allow the teacher to capitalize on his instructional strengths. As a teacher develops an instructional plan, the following kinds of student data should be considered:

1. Academic aptitude
2. Achievement
3. Personal
4. Learning preference
5. Diagnostic

One of the most important factors any teacher should consider in planning an instructional program is his own competence. If the teacher is uncomfortable with a program or procedure, the results are usually unsatisfactory. Each learning activity should be selected in terms of its appropriateness for a particular student and the teacher's competence. If, on the other hand, the teacher is competent and comfortable in an activity, there is usually a degree of enthusiasm which

carries over into the student's learning. This enthusiastic spark is many times the difference between success and failure.

Objective

After completing this module, the participant will be able to develop teaching alternatives for a hypothetical student.

Directions

Read the material in the examples and supportive information section for use in completing the learning activities. Data for completing the learning activities may be selected from the Data Collection Packet of this program. For groups of 4 to 8 persons for the completion of the activities.

Examples and Supportive Information

Planning for an instructional procedure frequently requires information which is not readily available. Title I students experience all of the learning frustrations of non-Title I students plus additional frustrations brought on by a series of unsuccessful learning endeavors. Teachers working with Title I students need a wide variety of options from which to choose in deciding which activity would be most appropriate for each student. The following example presents one form which may be used to provide a behavioral approach to the instructional process.

Learning Activity 1

Using a hypothetical class provided by the supervisor or data from a Title I class, identify and list instructional procedures that appear to be appropriate for the class.

Identify a reporter to share your results with the large group. The supportive information on Pages III-A3-4, III-A3-5, and III-A3-6 may be used as a guide in Activity 1.

Learning Activity 2

Develop an instructional guide to use in teaching one lesson. (The form used in the examples and supportive data section may be used if desired.) Include as many teaching/learning procedures as possible in your guide. Also include evaluation procedures which allow a student to demonstrate proficiency without having to read the test item.

EXAMPLE
SUPPORTIVE INFORMATION

LEARNING EXPERIENCE	HOW	STUDENT PERFORMANCE
4A Decimal Numerals	I 1. Student will read and study page 263-272 of Silver Burdett's Mathematics Level 5 c. 1973, or other test selection on Decimal Numerals. I 2. Individuals will work Block 16 from Individualized Mathematics Drill and Practice Kit CC or Decimals. G 3. Listen to teacher lecture on Decimal T Numbers using the chalkboard for illustrations. G 4. A small group of students will use encyclopedias and make 1 page reports to be presented to the remainder of the class in small group sessions with a teacher led discussion to follow, on the comparison of the decimal system to the metric system. G 5. Groups of students will make a bulletin board or poster on one of these: A. Changing fractions to Decimal Numbers. B. Changing Decimal Numbers to Fractions. C. The place value of Decimal Numbers. D. Decimal Numbers and the Metric System.	1. Using a teacher prepared quiz sheet each student will correctly convert 10 decimal numbers to fractional form or 10 fractional form to decimal form. 2. Given a set of 10 decimal number problem cards a student will correctly name eight of them on paper or aloud. 3. Students will be able to identify orally or on paper all 3 decimal number place values studied-(tenths, hundredths, and thousandths.) 4. The student will correctly write and convert 3 examples of each place 10th, 100th, and 1000ths. 5. Listening to a teacher prepare tape of 15 decimal number problems the student will correctly write 12.

LEARNING EXPERIENCE	HOW	STUDENT EXPERIENCE
4A Decimal Numerals (continued)	G 6. Small groups will play a decimal game. Put decimal number on his card and place in the proper of 3 boxes which have been labeled Tenths, Hundredths, Thousandths. (Cards may be cut into animal shapes. A "zoo keeper" may be selected from one of the children in the class to see which box has the most "animals.") G 7. Students will make a set of 10 flash cards with 10th, 100ths, 1000ths Numerals on them with the correct fractional name on back. They will then quiz others with these. G 8. Students will read from their math I test about decimal numbers and select 15 problems to convert to fractions or from fractions to decimal numbers. I 9. Students will work problems from a G prepared activity sheet or do drill from Page 52 in Learning Mathematics or other text. G 10. Pairs of students will take long M strips of colored paper and cut it into 10 pieces. They will then arrange a number of these pieces for their partner to identify orally. The pieces then will be glued on cards or sheets of paper and a piece of yarn will be used to cluster the number to be identified for later review.	

LEARNING EXPERIENCE	HOW	STUDENT PERFORMANCE
4A Decimal Numerals (continued)	M I 11. For extending the decimal concept use money figures, gasoline register figures, odometer figures in making conversion problems to be worked on transparencies by several students. G M 12. Groups of children will find pictures and articles of things which use decimal numerals and make a display. T 13. Using the chalkboard, flannel board or overhead projector the teacher will illustrate place value of decimal numerals to be followed with an activity sheet. (Lead sheet to see that the number of digits in a fraction 1/2 denominator compares with the digit equivalent.)	

SELF-ASSESSMENT

Answer these questions on a separate sheet of paper.

1. Do you feel that you can develop an instructional procedure that will meet the needs of your Title I classes.

   YES___NO___

2. Did the instructional guide you developed include a variety of instructional activities?

   YES___NO___

3. Did it appear that these activities would be applicable for Title I students?

   YES___NO___

PACKET III

PRESCRIPTIVE TEACHING

MODULE A-4

EVALUATION OF LEARNING

INTRODUCTION

Although a great deal of the evaluation of Title I students will be objective in nature, consideration should be given to developing test items which will allow the student to express himself either orally or through a narrative explanation. A group of memorized facts may tend to defeat the ultimate purpose for Title I classes.

An important component of Title I evaluation is in the area of attitudes. A Title I student with a positive attitude will more likely make acceptable progress than will a student with a negative attitude. As a result, the Title I teacher should constantly monitor individuals' attitudes in an effort to identify possible attitudinal changes. Several instruments are available to assess attitudes. These instruments should be administered and interpreted with a great deal of discretion because many false implications may be drawn from them. Many times a simple, locally developed instrument may provide sufficient indication as to possible attitudinal changes.

Learning Activity 1

Using a concept of your choice, develop five test items to determine whether that concept has been mastered. After the items have been developed, present them to a group of fellow workshop participants for critiquing.

Learning Activity 2

Meeting in groups, develop a series of items to assess attitudinal change in the classroom. After the items have been developed by each group, meet together and compile an attitude inventory for your Title I students.

SELF-ASSESSMENT

Answer these questions on a separate sheet of paper.

1. Do you feel that you can effectively develop objective test items to evaluate your Title I classes?

   YES___NO___

2. Do you feel you can develop narrative type questions to stimulate the students to organize facts and report them in orderly fashion, either written or oral?

   YES___NO___

3. Do you feel that you could identify attitudinal changes in your Title I class through observation, using a commercially-produced attitude inventory or using a locally-produced attitude inventory?

   YES___NO___

PACKET III

PRESCRIPTIVE TEACHING

MODULE B

PRESCRIPTION WRITING

INTRODUCTION

The goal of prescription writing is to tailor learning experiences to the unique needs of an individual child. This specific teaching program design is based on information gained from the collection and analysis of data for each student.

In the Title I program, continuous diagnosis, remediation, and treatment are the essence of prescriptive teaching. The teacher must modify his teaching procedures and plans as new needs become apparent. Prescriptive teaching is an alternative process: diagnose, prescribe, teach, and evaluate.

When the student has mastered the skills presented, the next level of learning is prescribed. If the student has not succeeded in learning the skills, his errors are analyzed to determine why he failed and another prescription with alternative activities is written.

Objective

Upon completion of the examples and supportive information, the participant will write a prescription designed to meet the needs of a hypothetical student.

Directions

Study the examples, supportive information section, and student prescriptions. The data for the hypothetical student has been selected from throughout the program for the module. Work through the learning activities, analyze the data, and determine whether you agree with the prescription.

SUPPORTIVE DATA

Characteristics of a Prescription

A prescription is a written, specific statement of the activity or activities in which a student is to engage in order to meet a diagnosed need. The format in which the prescription is written is less important than are its completeness and specificity. A prescription should be written in language which is easily understood by the student for whom it is designed.

As a minimum, each prescription should include the following information:

1. Student's name
2. Skill, subject, or concept to be learned
3. Date on which the skill, subject, or concept is to be introduced
4. Student's learning preference (individual work, work with partner, work in small group, work in large group, work with teacher, etc.)
5. Identification of types of activities best suited for student to master skill, subject, or concept
6. Evaluation procedure to be followed
7. Special equipment or materials to be utilized
8. Date on which the skill, subject, or concept was mastered
9. Action to be taken if mastery was not achieved

Data for a Hypothetical Student in a Title I Math Class

Student's Name Diane Press
Grade 6
Age 12

Personal Data:

Parents living together, home life stable, two younger sisters, father construction worker, mother housewife, parents active in Church and community, no emotional problems, health good.

Mental Ability Scores:

Grade 3 SRA Language - 89, Non-Language - 92
Grade 4 California Test of Academic Aptitude
Language - 85, Non-Language - 88
Grade 6 Otis-Lennon Mental Ability I.Q. - 92

Achievement Scores:

Grade 6 California Achievement Test:
Computation 4.2 O.G.E.
Concepts and Problems 4.6 O.G.E.

Areas of Deficiency:

Multiplication and division of whole numbers, re-grouping, 3-digit multiplication and division, operation with zero, sentences and expression, all areas dealing with fractions, all areas dealing with word problems

Criterion-Referenced Pre-Test:

Areas of deficiency -- multiplication and division of whole numbers, fractions, and decimals

Data from Previous Teacher:

Diane has made satisfactory progress in addition and subtraction of whole numbers. She has not learned her multiplication-division facts. She should be ready to begin multiplication and division. She is conscientious and a hard worker.

Learning Preference:

Independent 2, teacher 8, group 2, leadership 1, structured 3, unstructured 1

III-B-4

STUDENT PRESCRIPTION #1

Rx

Diane Press — STUDENT
10/21 — DATE INTRODUCED

Division — SKILL, SUBJECT, OR CONCEPT
DATE OF MASTERY*

STUDENT'S LEARNING PREFERENCE

ASSIGNED ACTIVITIES Report to the teacher aide in the flash card learning center for the first 10 minutes of the period. Use cards with divisor less than 5.

SPECIAL MATERIALS OR EQUIPMENT

EVALUATION PROCEDURE:__ TEACHER OBSERVATION:__ WRITTEN WORK:__ OTHER:__

*If mastery not achieved, indicate follow-up action

STUDENT PRESCRIPTION #2

Rx

Lian Press — STUDENT
10/21 — DATE INTRODUCED

Division — SKILL, SUBJECT, OR CONCEPT
DATE OF MASTERY*

STUDENT'S LEARNING PREFERENCE

ASSIGNED ACTIVITIES Work with teacher for group instruction in division.

SPECIAL MATERIALS OR EQUIPMENT

EVALUATION PROCEDURE:__ TEACHER OBSERVATION:__ WRITTEN WORK:__ OTHER:__

*If mastery not achieved, indicate follow-up action

STUDENT PRESCRIPTION

R

Lian. Press — STUDENT — 10/21 — DATE INTRODUCED

Division — SKILL, SUBJECT, OR CONCEPT — DATE OF MASTERY*

STUDENT'S LEARNING PREFERENCE _____

ASSIGNED ACTIVITIES Report to teacher aide for division practice using cuisenaire rods — from 9:00 am until end of period.

SPECIAL MATERIALS OR EQUIPMENT _____

EVALUATION PROCEDURE:__ TEACHER OBSERVATION:__ WRITTEN WORK:__ OTHER:___

*If mastery not achieved, indicate follow-up action _____

Learning Activity 1

Analyze the prescriptions for Diane Press on pages III-B-4 and III-B-5, using the criteria given in the supportive data. Write your response on a separate sheet of paper. Compare your response with those given on page III-B-6.

Learning Activity 2

Using the data in the examples and supportive data section, write a prescription for Diane Press. The concept under consideration is multiplication of one and two-digit numbers. You may use the form at the end of the examples and supportive data section or a form of your own choosing.

ANSWERS FOR LEARNING ACTIVITIES

Learning Activity 1

It was noted from the areas of deficiency that Diane was deficient in multiplication and division of whole numbers, re-grouping, 3-digit operations, operations with zero, sentences and expressions, all areas dealing with fractions, and all areas dealing with word problems.

Diane's learning preference indicates that she needs strong teacher interaction in structured situations.

1. Data indicated that Diane had a deficiency in all concepts of multiplication and division. The teacher should have based Diane's prescriptions on her need for multiplication rather than introducing division at this time.
2. The teacher has written too many prescriptions for one activity. These should have been prepared on one prescription form.
3. The teacher did not indicate that Diane was to work on division of whole numbers, fractions, or decimals.
4. The teacher did not indicate Diane's learning preference.
5. The teacher indicated a rather tight time frame during which Diane was to master the skill.
6. Prescription #2 is much too general.
7. The prescriptions contain no indication of what evaluation procedure should be used.

(SUGGESTED PRESCRIPTION GUIDE)

STUDENT PRESCRIPTION

℞

Dian. Press — 10/21
STUDENT — DATE INTRODUCED

Multiplication - without regrouping {insert date when mastery reached}
SKILL, SUBJECT, OR CONCEPT — DATE OF MASTERY*

STUDENT'S LEARNING PREFERENCE Structured - with supervision

ASSIGNED ACTIVITIES 1. Teacher instruction - multi-facts (ind. or grp) 2. Flash cards - multiplier less than 5. (with aide) 3. Cuisenaire rod drill (with aide)

SPECIAL MATERIALS OR EQUIPMENT {optional} cuisenaire rods, flash cards

EVALUATION PROCEDURE: ✓ TEACHER OBSERVATION: __ WRITTEN WORK: __ OTHER: __

*If mastery not achieved, indicate follow-up action {one-to-one with teacher or aide using other instructional media} - use this section of the prescription if follow-up action is indicated.

SELF-ASSESSMENT

Answer this question on a separate sheet of paper.

Do you feel that you could write prescriptions for the Title I students in your class that would be appropriate for their unique learning disabilities?

YES___NO___